FIRE ENGINEERING

The Journal of the Fire Protection Profession Since 1877

MARCH, 1949

OHIO STATE UNIVERSITY
MAR 23 1949

Spokane, Wash., Firemen at Work on Church Fire; a Good Stop Was Made

A CASE - SHEPPERD - MANN PUBLICATION

GOOD REASONS WHY EMERSON RESUSCITATORS *are* TRUSTED IN EMERGENCIES

1. SIMPLICITY In asphyxial emergencies speed saves lives and simplicity means speed. Emersons have it. Turn on the oxygen, move one lever and apply the mask. **2. SAFETY** The pressures are effective, yet have never harmed a lung, not even a baby's. They are approved by the American Medical Association—and are not adjustable. . . . More oxygen is brought to the lungs than by manual artificial respiration, yet there is no bodily pressure to endanger an injured or burned person. . . . The Emerson Resuscitator mounted in the carrying case has separate passageways throughout the mechanism for inhaled oxygen and exhaled gases (feature found in U. S. Patent No. 2268172). . . . The case sets flat and won't topple, even if an extension hose is tugged. **3. EFFICIENCY** Is it important that your Emerson runs longer on a given quantity of oxygen? Far out on a beach or at some other remote place this factor may save a life. **4. QUALITY** Workmanship and materials throughout are superlative, guaranteed by the factory (for two years) and checked by our representatives throughout the United States and Canada. **5. ADAPTABILITY** Standard models can be adapted for *dual, triple,* or *quadruple* use. . . . Extension hoses can be used to give full protection 100 feet or more away from the parent machine, complete with *aspirator* (as well as *resuscitator* and *inhalator* functions). . . . Large cylinders can be hooked up, for long cases, by using a flexible connector. Small cylinders can be changed with one hand by a man who is holding the mask on a patient's face with the other.

"Simplest" and Safest"

These advantages mount up. They can help you save lives.

WE'RE SENDING THIS BECAUSE WE'RE INTERESTED IN KNOWING MORE ABOUT EMERSON EQUIPMENT

PLEASE HAVE YOUR REPRESENTATIVE CALL ☐
PLEASE SEND US ADDITIONAL LITERATURE AND MEDICAL REFERENCES ☐

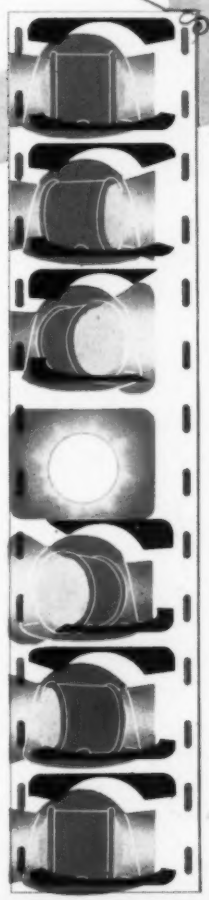
NAME _____ TITLE _____

ADDRESS _____

_____

J. H. EMERSON CO.
22 COTTAGE PARK AVENUE, CAMBRIDGE 40, MASS.

Beacon Ray Light Eclipses ALL OTHER WARNING LIGHTS!



Your Beacon Ray Light is your badge of authority in any emergency, on the way or at-the-scene.

Don't be content with ordinary warning light protection, danger may lurk at any point of the compass. Protect all-the-way with Beacon Ray.

Only Beacon Ray gives all-around 360° protection, not just front end or front and rear protection, but *full 360°* front *sides* and rear.

Reliable, longer lasting, due to superior design which has eliminated oscillating parts. Totally enclosed from weather influences—seals working parts from sleet, snow, rain, dust and mud. All moving parts of Beacon Ray are *inside.*

Specify Beacon Ray Light and Federal Coaster Sirens on all *NEW* Apparatus!

FEDERAL ENTERPRISES, INC.

formerly: FEDERAL ELECTRIC COMPANY, INC.

8702 SOUTH STATE STREET CHICAGO 19, ILLINOIS

FIRE ENGINEERING

A Consolidation of FIRE AND WATER ENGINEERING, THE FIRE ENGINEER, FIRE PROTECTION *and* FIRE SERVICE

CONTENTS

Vol. 102 March, 1949 No. 3

	Page
With the Editor — By Fred Shepperd	181
Breakage Characteristics of Tempered Plate Glass	182
Nine Killed by Unusual Explosions and Fire in Kansas Power Plant — A Staff Report	188
Fremont, Ohio, Fire Threatens High Value District — A Staff Report	191
Novel Crash Fire Fighting Unit Protects New York Airport	192
The Watch Desk — By Roi B. Woolley	197
News of the Manufacturers	198
Short Cuts and Gadgets	199
Questions and Answers	202
False Alarms	204
World-Wide Fire News — By Roi B. Woolley	206
What's Burning	207
The Round Table — All Year 'Round Firemen's Training	210
Obituaries	216
Persons in the News	217
Convention Dates	219

FRED SHEPPERD
Editor

ROI B. WOOLLEY
Assistant Editor

It's a Race!

THIS business of fire control and extinguishment is a race against time and the American tempo to produce products, materials and methods that add to the nation's already overburdened list of fire hazards, to quote a leading fire protection engineer.

- Some idea of that race is conveyed in the editorial columns of this (and every) issue of this journal. Read the story of the Fremont, Ohio, department store fire in this number. Then study the report on the breakage tests of tempered plate glass, also herein. And read how "hot sand" is being used to "sink" dangerous oil slick on our waterways.
- But the race isn't being confined alone to techniques and methods—get a load of the account of the new super-duper aircrash "battlewagon," told both in the editorial and advertising sections of this issue. Read about the new "tools" of the fire service from books to bolt-cutters, fog nozzles to fireproof furnishings and building materials in the advertising pages, etc.
- Yes sir!—to keep up with the three-alarm tempo of the times—be sure to keep FIRE ENGINEERING at your finger-tips.

The Publishers

FIRE ENGINEERING

The Journal of the Fire Profession since 1877; published on the fifteenth of each month by Case-Shepperd-Mann Publishing Corp., 24 West 40th St., New York 18, N. Y., also publishers of *Water Works Engineering*, *Sewage Works Engineering*, etc. ¶Subscription price: U. S., Latin America and Canada, $3.00 a year; Foreign, $4.00; Single copies, 35c. ¶Member of Audit Bureau of Circulations and Associated Business Papers, Inc. ¶Entered as second-class matter April 15, 1929, at the Post Office at New York, N. Y., under Act of March 3, 1879.

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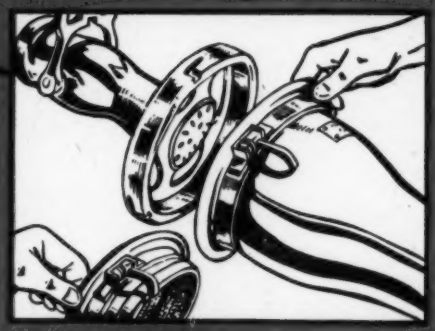
A CASE-SHEPPERD-MANN PUBLICATION
"*Specialized* Leadership"

FASTER and MORE ECONOMICAL EXTINGUISHMENT of GASOLINE FIRES using ROCKWOOD FogFOAM

Whip gasoline fires with Rockwood's new Type FFF FogFOAM Nozzles and Rockwood Foam Liquid. They offer several advantages over old style, slow-acting *powder* type foam and any other type of liquid foam equipment now on the market.

FogFOAM produced by Rockwood enables you to: (1) use smaller hose lines; (2) bring foam lines into action faster; (3) apply foam directly to surface of burning gasoline; (4) cover large areas of burning gasoline or other flammable liquids faster than with a solid foam stream; (5) put out gasoline fires at *less cost* by using *less foam;* (6) *put out* and *keep out* gasoline fires; (7) protect firemen with *wide, sheltering* discharge of FogFOAM; (8) clean up foam residue following fire more easily and with less effort than possible with old style powder foam.

Write for literature giving more details.



Rockwood's Type FFF Nozzles give you choice of *three* types of discharge: (1) FogFOAM, (2) Solid Foam Stream, or (3) High Velocity WaterFOG. Picture shows quick shift from FogFOAM Screen to Solid Foam Shaper on Rockwood Type FFF Nozzle.

ROCKWOOD

ROCKWOOD SPRINKLER COMPANY

54 HARLOW STREET WORCESTER 5, MASSACHUSETTS

Specialists in Fire Protection Engineering, Equipment and Installation since 1907

THE SPANGLER "DUAL" PROVIDES DUAL EFFECTIVENESS!

Dual-powered — Twin Ford V-8, 100 h.p. motors synchronized.

Dual-geared — Power applied to two rear axles.

fire-fighting power — Twin 500 GPM standard front-mounted pumps; individual or dual operations.

Dual-plus water capacity — More than double normal large booster tank capacity — 1500 gallons.

Dual booster lines — Twin 300-ft. booster lines on double-dual reels. Operate individually or in tandem.

More than double the normal hose-carrying capacity — room for 5,000 ft. of 2½-in. hose, or its equivalent.

Dual maintenance — Service and parts available through any recognized Ford Agency.

Write for complete information

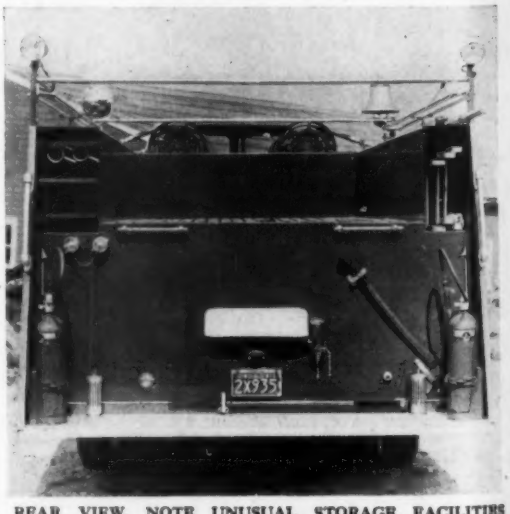
MANUFACTURED BY

HAHN MOTORS, INC.

HAMBURG, PA.

for

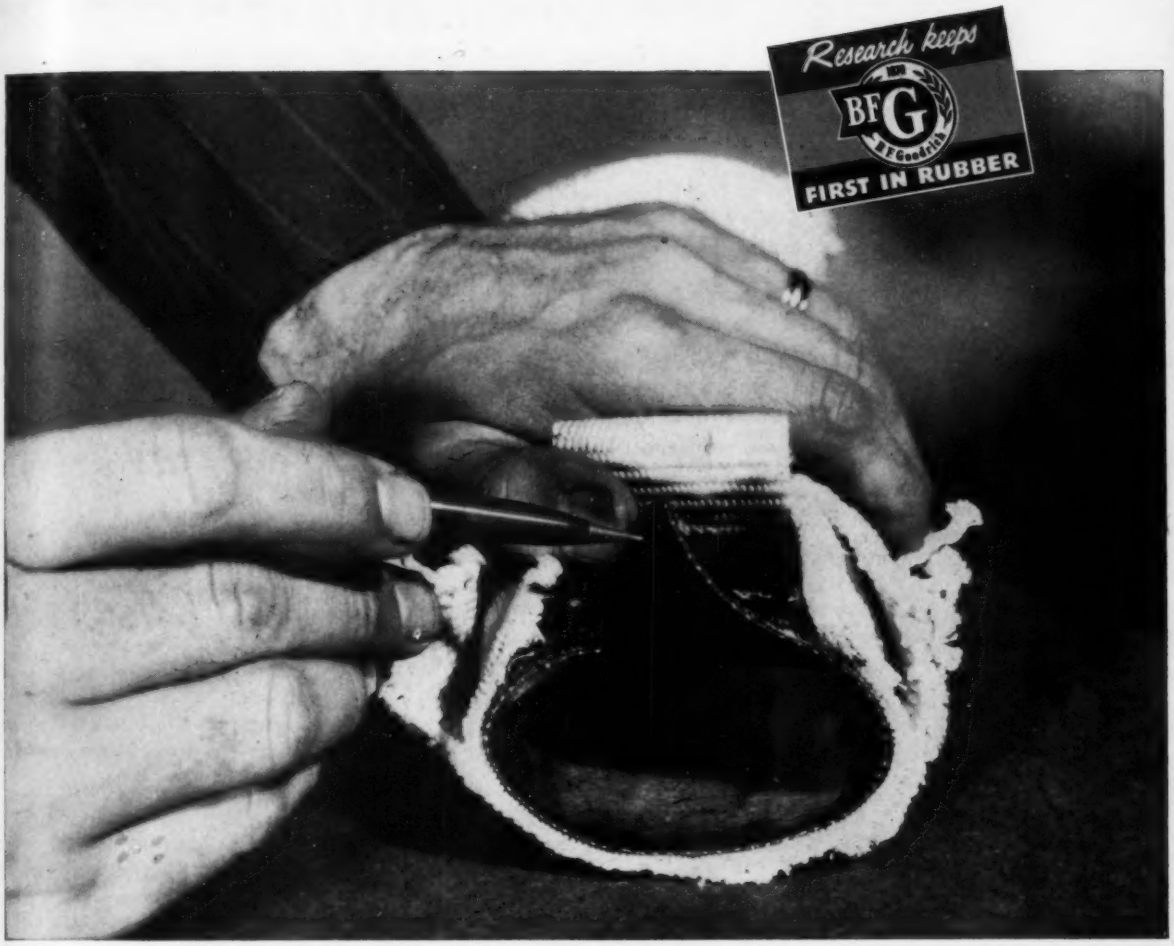
HEAD-ON VIEW, SHOWING EASY ACCESSIBILITY OF PUMPING UNITS.



REAR VIEW, NOTE UNUSUAL STORAGE FACILITIES FOR HOSE, LADDERS and MISCELLANEOUS EQUIPMENT.

D. H. SPANGLER ENGINEERING & SALES CO.

HAMBURG **PENNSYLVANIA**



How B.F.Goodrich end protection ends hose "blowouts"

Makes fire hose safer, longer-lived, more economical

NOT ONE length — not *one!* — of the millions of feet of end-protected fire hose sold by B. F. Goodrich distributors has ever been known to "blow out" next to the coupling. The reason: exclusive, patented B. F. Goodrich end protection fortifies each end with a foot of hard cotton cord ply, that adds years of safe life to the hose. It protects the critical coupling area from damage that causes blowouts, this way —

Stops tube cracks, caused by coiling —Some fire departments coil their hose by rolling it round the coupling as a reel. This kinks the hose; then the coupling presses on the kinked part like a vise. Ordinary fire hose tubes will give way under this strain. B. F. Goodrich end-protected fire hose stands this treatment without damage.

Applying coupling won't damage it — When a coupling is applied, the "bite" of the expansion ring will sometimes cut or weaken ordinary tubes. B. F. Goodrich end protection gives an extra cushion of cord to take the thrust of the ring without damage. It helps make a tighter union between hose and coupling, too.

Making connections won't damage it — Hose is sometimes twisted out of shape or strained when being coupled or uncoupled to hydrant or fire engine discharge gate. And, after coupling, it is under continual flexing by the pulsation of the water passing through it. End-protected B. F. Goodrich hose withstands these service conditions without weakening.

Other B. F. Goodrich hose features — Other protective features that add to the safety and service you get from B. F. Goodrich fire hose: rubber compound ingredients that keep the tube "young" for longer; prestretched cord woven under tension for uniform jacket strength; Hydroseal treatment that protects from freezing, mildew and rotting; all standard couplings available. See this better fire hose at your local distributor's. *The B. F. Goodrich Company, Industrial and General Products Division, Akron, Ohio.*

B.F.Goodrich
RUBBER FOR INDUSTRY

The Original MIDWESTERN Yellow Striped Safety Coat Is Again Available . .

for Men of Action!

Here's Protection and Comfort in Your Hazardous Work of Safeguarding Life and Property Against FIRE!

Modern fire fighting calls for ***specialized*** protective clothing . . . clothing that safeguards the fireman's life on every run . . . clothing that enables him to use his equipment to the fullest advantage.

Every Midwestern product combines the thoughts and suggestions of practical Fire Chiefs and firemen from every section of the country . . . and every purchaser profits from years of Midwestern research and experience. That is why the famous Mackinaw Coat and other Midwestern clothing have embodied in their design every feature necessary for the protection and comfort of firemen.

In our vast selection of crude rubber materials you will find a type of fabric suitable for your climate and needs. The softness and flexibility in the high-grade materials used are your assurance of long time service and comfort. Many Fire Chiefs are now including Midwestern clothing in their regular yearly budget and, by placing your order early, you can be assured of this adequate protection when needed.

For complete information, have your Midwestern dealer show you our new garments now manufactured from crude rubber compounds. A letter to the factory will also bring you material samples for your inspection.

We now have available: White, Ivory and Brown crude rubber coats for Chiefs, Assistants and other officers; also all sizes short and ¾ length felt lined Firemen's boots for immediate shipment.

NONE GENUINE WITHOUT THIS TRADE MARK

MIDWESTERN MFG. CO., Mackinaw, Illinois

Manufacturers of the Famous **MACKINAW Coats**

32 MACK PUMPERS FOR CHICAGO!

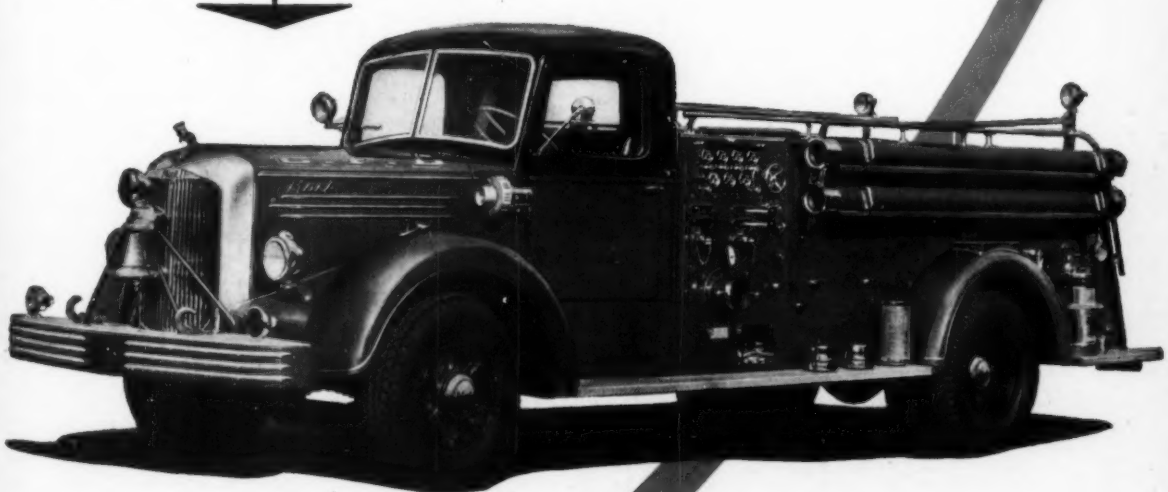
Mack Completes Year's Largest Delivery

Here's the first of thirty-two Mack Type 95, 1000-gallon pressure-volume centrifugal pumpers to be delivered to the city of Chicago . . . the largest single-order delivery of fire apparatus in 1948-1949.

Look to the leader to set the pace!

Mack leadership is based on qualities that count: *Power a-plenty*, for fast starts, quick runs, and great pumping capacity at moderate engine speeds. *Bred-in-the-bone dependability*, assuring faithful response and full-time protection. *Bulldog stamina*, that keeps peak efficiency under long, hard usage. And *near-at-hand service*, ready to maintain Mack performance through a nation-wide network of 67 factory branches and over 600 dealers.

These are some of the reasons why progressive departments from coast to coast regard Macks as the finest in fire apparatus. Good reasons, too, why you'll get pace-setting performance — whatever your requirements — when you *Modernize with Macks.*



Mack

FIRE APPARATUS

Mack Manufacturing Corporation
FIRE APPARATUS DIVISION
Long Island City 1, New York

Factory branches and dealers for parts and service in all principal cities. Canada: Mack Trucks of Canada, Ltd.

7334

TRIPLE COMBINATION PUMPERS — 500 TO 2000 GALLONS . . . SQUAD WAGONS . . . CITY SERVICE AND QUADRUPLE COMBINATION LADDER TRUCKS

Announcing 2 NEW **Stainless Steel**

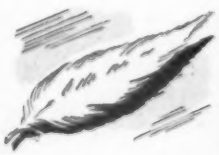
Fyr-Fyter FIRE EXTINGUISHERS

• 5 lbs. LIGHTER • 500 lb. TESTED
• AND LESS EXPENSIVE

Here they are, Fyr-Fyter's new *Silver-lite 500* foam and soda-acid fire extinguishers. They are both made with stainless steel . . . and stainless makes them the finest 2½ gallon foam and soda-acid extinguishers ever built.

They are lighter in weight . . . stronger under pressure . . . and because of production savings are actually less expensive. If you are interested in appearance you should also know that the polished luster of stainless steel lasts longer.

Write for full details about Fyr-Fyter's new *Silver-lite 500* models. Anything that is better and also less expensive is certainly worth checking into. Ask for bulletin F-1144 (soda-acid) and bulletin F-1146 (foam).



5 POUNDS LIGHTER

Use of stainless steel has produced important weight savings, making the unit easier to lift.

EXTRA STRENGTH

The extinguishers carry the Underwriters' 500 lb. test label instead of minimum 350 lb. label.

DENT RESISTANCE

The Fyr-Fyter stainless steel extinguishers are more resistant to knocks, bumps, and impacts.

LASTING LUSTER

The polished stainless steel finish retains its lasting beauty indefinitely. No tarnishing.

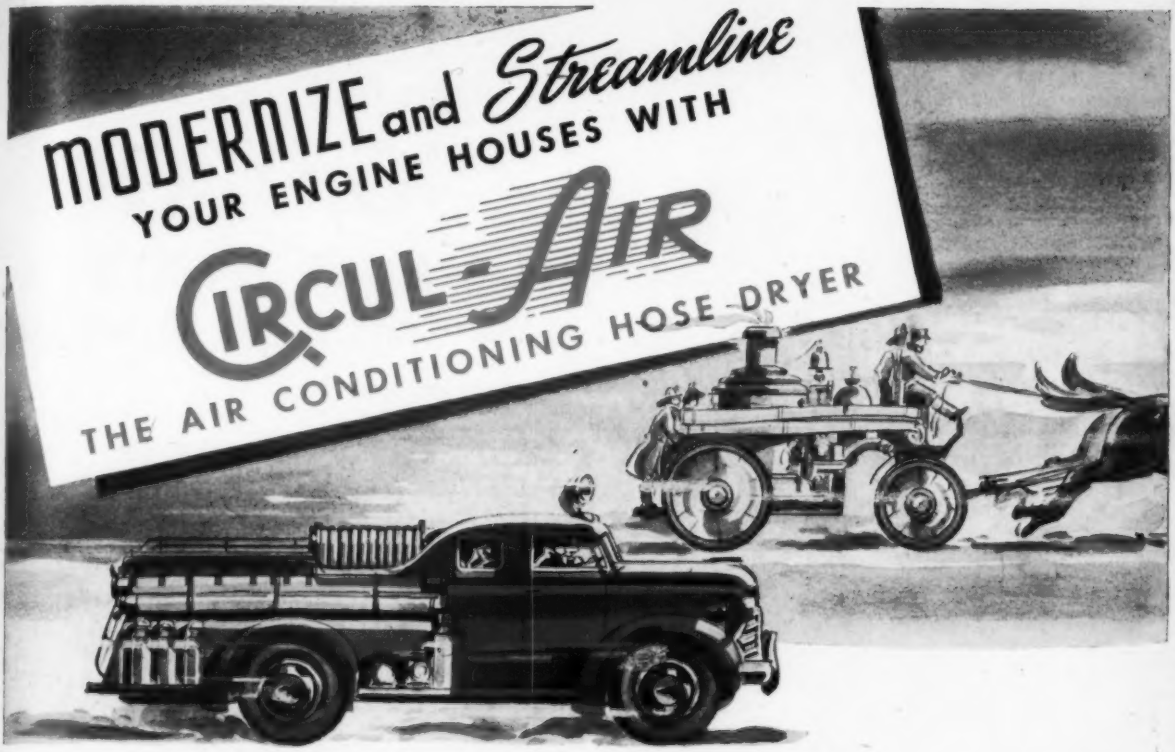
Approved by the Underwriters' and Factory Mutual Laboratories

Fyr-Fyter FIRE EXTINGUISHERS

THE FYR-FYTER COMPANY
Room 101-51 Dayton 1, Ohio

Fyr-Fyter Extinguishers

PROFITABLE TERRITORIES OPEN TO QUALIFIED MEN



If you want the tops in hose-drying efficiency, CIRCUL-AIR is a MUST in your fire station. NO OTHER METHOD is so fast - so safe - so easy - so economical. Its many advantages are so obvious there is no longer any reason to suffer the inconvenience and drudgery of the expensive hose tower, nor the cumbersome, space-hogging, rubbish-catching hose - rack — both relics of the "horse - and - buggy" days.

CIRCUL-AIR THE *COMPLETE* DRYING UNIT

- Dries Hose *and* Clothing in a Few Hours
- Saves Space *and* Work - Fits Any Corner
- Improves New Station Design - Cuts Costs
- Keeps *All* Hose Ready for Service Always
- Low First Cost - Inexpensive To Operate

THESE CITIES—AMONG HUNDREDS OF OTHERS IN RECENT MONTHS HAVE "SWITCHED TO CIRCUL-AIR"

Allentown - Alton - Anniston - Adel, Ga. - Benton Harbor - Burlington - Boston - Chicago - Champaign - Columbus - Columbia, S. C. - Cedar Rapids Concord, N. C. - Detroit - Dallas, Ore. - Dothan, Ala. Erie, Pa. - Elko, Nev. - Edgewater, N. J. - Fort Smith, Ark. - Grand Rapids - Gladewater, Tex. - Greensboro Hagerstown - Kalamazoo (Twp.) - Lake Charles, La. Lake Wales - Lorain - Louisville - Memphis - Monroe Newark - New Britain - Oklahoma City - Omaha Oshkosh - Oak Ridge - Providence - Peekskill - Racine St. Petersburg - Santa Fe - San Leandro - Twin Falls Traverse City - Trenton - Utica - Winnipeg

Solve your drying problem by including CIRCUL-AIR in this year's Budget. Write today for illustrated booklet.

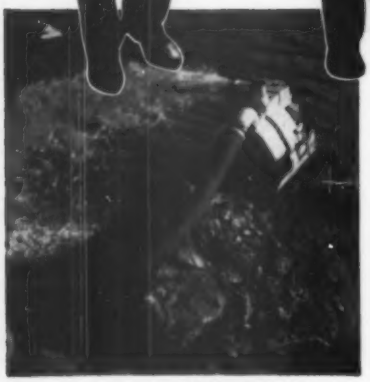
THE CIRCUL-AIR CORPORATION
575 East Milwaukee St.
DETROIT 2 MICHIGAN

More Than 250,000 HOMELITE UNITS

Pumps · Generators · Chain Saws · Blowers · Paving Breakers

Are on the Job

Everywhere



HOMELITE PUMPS

Everywhere . . . even in the most remote places . . . wherever water has to be pumped out fast *and with the least trouble* you'll find Homelite Carryable Gasoline-Engine-Driven Pumps in action.

HOMELITE GENERATORS

For operating electric tools . . . both high-cycle and standard 110 volt . . . and for operating floodlights, Homelite Carryable Gasoline-Engine-Driven Generators are the ever-ready, ever-dependable favorites everywhere.

HOMELITE CHAIN SAWS

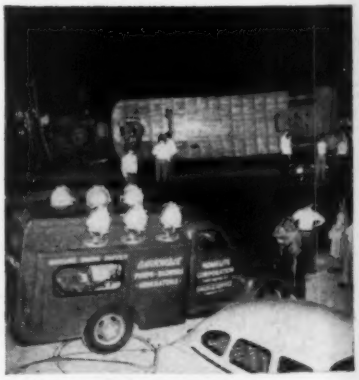
Lightweight, compact, safe and easy to handle, these one-man, high-cycle electric chain saws have super-fast cutting power and are rugged and dependable for all types of cutting on both tree work and construction jobs.

HOMELITE PAVING BREAKERS

More and more the new 84-lb. Homelite *Electric* Paving Breaker is being enthusiastically received by those who want a fast, efficient breaker that is compact and easy to move.

HOMELITE BLOWERS

Where ejecting smoke or supplying fresh air is a must for safety and efficiency, Homelite Carryable Gasoline-Engine-Driven Blowers are constantly on the job.



HOMELITE SERVICE

In all parts of the country Homelite representatives are ready to demonstrate the advantages of Homelite units and to service most efficiently all Homelite equipment.

Homelite Corporation

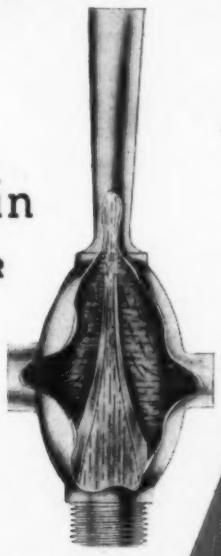
303 RIVERDALE AVENUE, PORT CHESTER, NEW YORK

Manufacturers of

Homelite Carryable Pumps • Generators • Blowers • Chain Saws • Paving Breakers

See how Homelite Equipment can save time, trouble and money for you. Send for descriptive bulletins on any or all of the equipment shown above.

THE aladdin PROPORTIONER



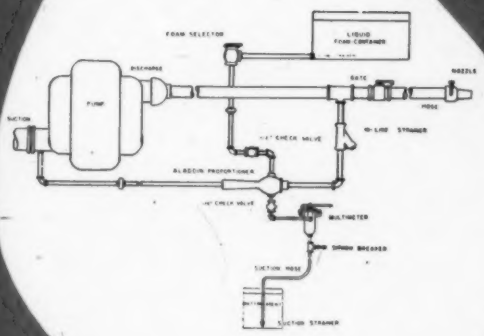
...in the FOAM and WET WATER spotlight..

For Wet Water or Foam when you need it . . . as you need it, with fog or solid stream . . . no premixing necessary.

Aladdin Model AA Dual Proportioner has proven itself in the field. Fully automatic and accurate. Start your pump, and your line is instantly charged with Liquid Foam, Wet Water, or plain water, whichever you desire. Time saving and economical.

Get in line with progressive fire fighters throughout the country. Some Aladdin users: Frigidaire Division, GMC; City of McAllen, Texas; North American Aviation Corp.; Wisconsin Forestry Service; Weleetka, Okla.; Akron-Canton Airport.

Aladdin Model AA Dual Proportioner Assembly includes the following items:
Aladdin Proportioner, Wetting Agent Multimeter, Wetting Agent Check Valve, Inline Strainer, Flexible Wetting Agent Suction Hose and Monel Screen Strainer, Anti-Siphon Valve, and assorted fittings.



Normal Operating Range of Model AA Proportioner

Lines from ¾" booster to 1½" hose. Pressures from 25 to 150 psi. Nozzle discharge from 15 gpm to 100 gpm.

Effective with any Wetting Agent or Liquid Foam manufactured for fire-fighting service.

For Inline or Hydrant Proportioner, without pump, ask about Aladdin's Model HY Proportioner.

ALADDIN PROPORTIONING EQUIPMENT CO., INC.
119 WEST 57th STREET • NEW YORK 19, N. Y.

Extra Fire Fighting Capacity At Your Command . .

WARD LA FRANCE

One of the new Ward LaFrance Pumpers delivered to the Boston Fire Department

Every fire department needs reserve capacity to meet unusual or unexpected situations.

For large and small departments, Ward LaFrance pumpers are engineered with *extra* capacity to surpass special local requirements. You can get the benefit of Ward LaFrance experienced engineering for your own fire service. Ward LaFrance Pumpers and Triple Combinations are the units needed for replacement of old apparatus and to protect new-growth areas in your community.

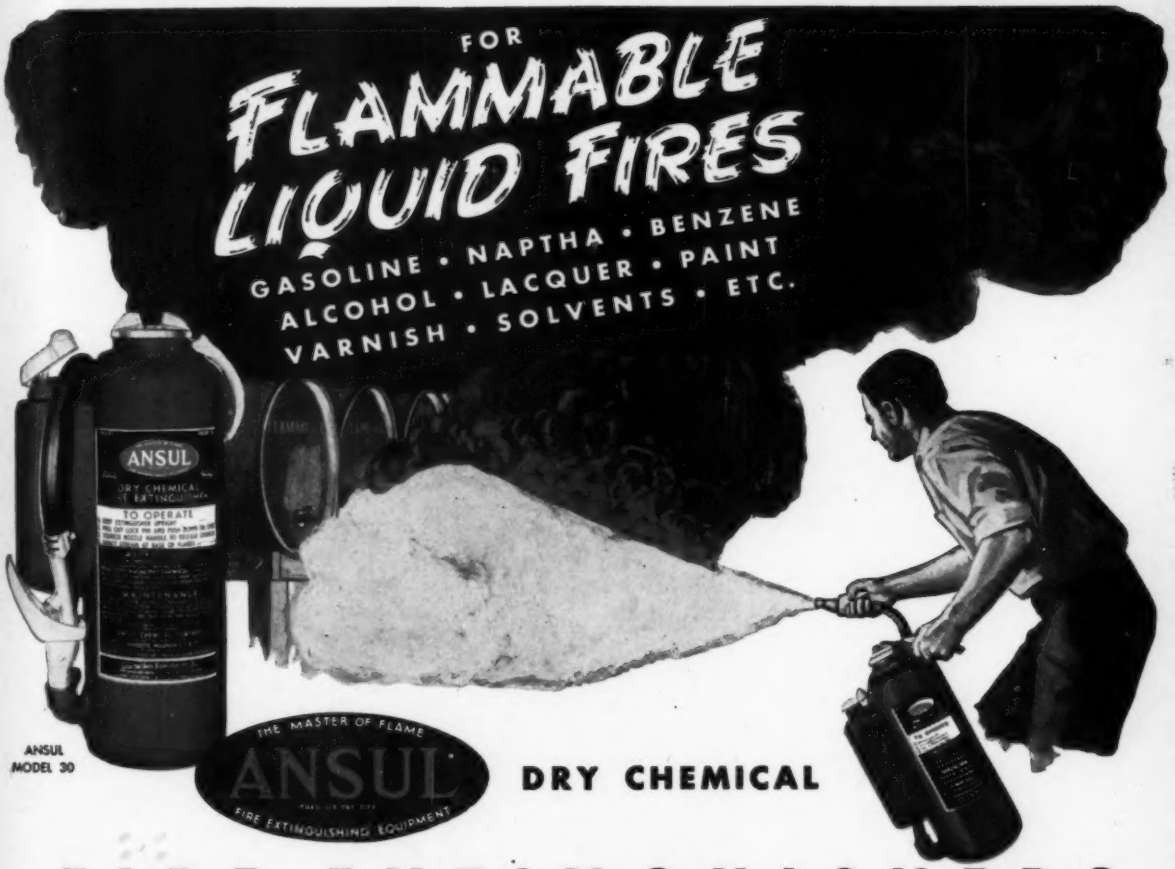
A new Ward LaFrance at your command . . . with exact road test rating known in advance . . . will build up your fire-fighting strength.

Call on the Ward LaFrance Distributor in your area, or write direct. Helpful illustrated bulletins are available.

WARD LA FRANCE TRUCK CORPORATION

ELMIRA, N. Y.

Please mention FIRE ENGINEERING *when writing advertisers*



FIRE EXTINGUISHERS ARE YOUR *BEST* PROTECTION

...and most economical, too! Tests conducted by impartial, nationally recognized approval laboratories have proved the superiority of Ansul Dry Chemical Fire Extinguishers on ***Flammable Liquid Fires.*** In addition, Ansul Fire Extinguishers provide greater safety for the operator. The stream of Ansul Dry Chemical forms a protective screen safeguarding him against radiant heat.

More and more industrial plants, transportation companies, oil companies, etc. are switching to Ansul Extinguishers as their first line of fire defense. There is a reason . . .

Get the facts. Send for your copy of File No. 404. You'll also receive our latest literature together with comparative rating charts for the various types of fire extinguishers.

- **Safe for use on electrical fires too! Even high voltages are not conducted by dry chemical stream.**
- **Can be recharged at scene of fire furnishing continuing protection.**
- **Annual recharging is not necessary. Low maintenance costs.**
- **Longer range stream of dry chemical is effective in winds and drafts.**
- **Ansul Dry Chemical is non-abrasive, non-corrosive, non-toxic.**
- **Listed and Approved by Underwriters Laboratories and Factory Mutual Laboratories.**

ANSUL CHEMICAL COMPANY
FIRE EXTINGUISHER DIVISION, MARINETTE, WISCONSIN
DISTRIBUTORS IN ALL PRINCIPAL CITIES

PROOF

OF THE VALUE OF A PROTECTION SYSTEM IS ITS RECORD IN MINIMIZING LOSSES

Proof of the remarkable efficiency of ADT Protection Services in minimizing fire and burglary losses is presented in the accompanying record for 1948.

These figures warrant the thoughtful consideration of all individuals and organizations concerned with the protection of property.

Of special significance is the high ratio of immunity from losses established during the past ten years, forcefully demonstrating the consistent, year-to-year effectiveness and value of ADT Protection.

ADT Central Station Services are available in more than 500 municipalities in the United States. Elsewhere the same systems are furnished for local operation or with direct-to-fire department connection, including all-important ADT inspections, tests and complete maintenance.

Write for booklet "Protecting Life and Property," describing ADT Services.

Controlled Companies of
AMERICAN DISTRICT TELEGRAPH COMPANY
155 Sixth Avenue New York 13, N.Y.
CENTRAL STATIONS IN ALL PRINCIPAL CITIES OF THE UNITED STATES

ADT

1948 PERFORMANCE

BURGLAR AND HOLDUP ALARM SERVICES

Attacks on ADT Protection	1,902
Entrances effected	1,054
Captures as result of burglar, holdup and other emergency alarms	750
Insurable values of properties protected	$2,238,189,000*
Ratio of losses to insurable values protected	1/100th of 1%
Burglary loss immunity in 1948	$99\frac{99}{100}\%$
AVERAGE BURGLARY LOSS IMMUNITY DURING THE PAST TEN YEARS	$99\frac{99}{100}\%$

WATCHMAN'S REPORTING AND MANUAL FIRE ALARM SERVICE

Investigations of failures of watchmen to signal Central Stations on schedule	210,379
Total number of signals recorded	356,308,792
Watchmen's patrol efficiency	99 94/100ths %
Alarms from Manual Fire Alarm Boxes	1,460
Insurable values of properties protected	$15,097,547,000
Ratio of losses to insurable values protected	4/100ths of 1%
Fire loss immunity in 1948	$99\frac{96}{100}\%$
AVERAGE FIRE LOSS IMMUNITY DURING THE PAST TEN YEARS	$99\frac{96}{100}\%$

SPRINKLER SUPERVISORY AND WATERFLOW ALARM SERVICE

Supervisory alarms, indicating temporary impairment of sprinkler systems	180,571
Waterflow alarms, caused by fires or serious leaks	3,545
Manual fire alarms	108
Insurable values of properties protected	$8,011,877,000
Ratio of losses to insurable values protected	2/100ths of 1%
Fire loss immunity in 1948	$99\frac{98}{100}\%$
AVERAGE FIRE LOSS IMMUNITY DURING THE PAST TEN YEARS	$99\frac{98}{100}\%$

*Not including ADT-protected values in bank vaults, the U. S. Treasury, 26 Federal Reserve Banks and branches, the U. S. Mints and the U. S. Bullion Depositories at Fort Knox, Ky., and West Point, N. Y.

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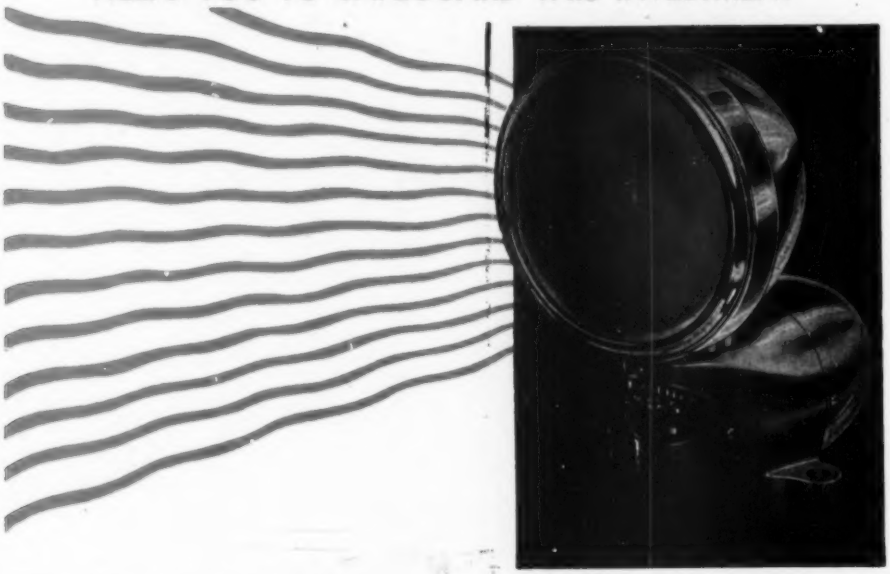

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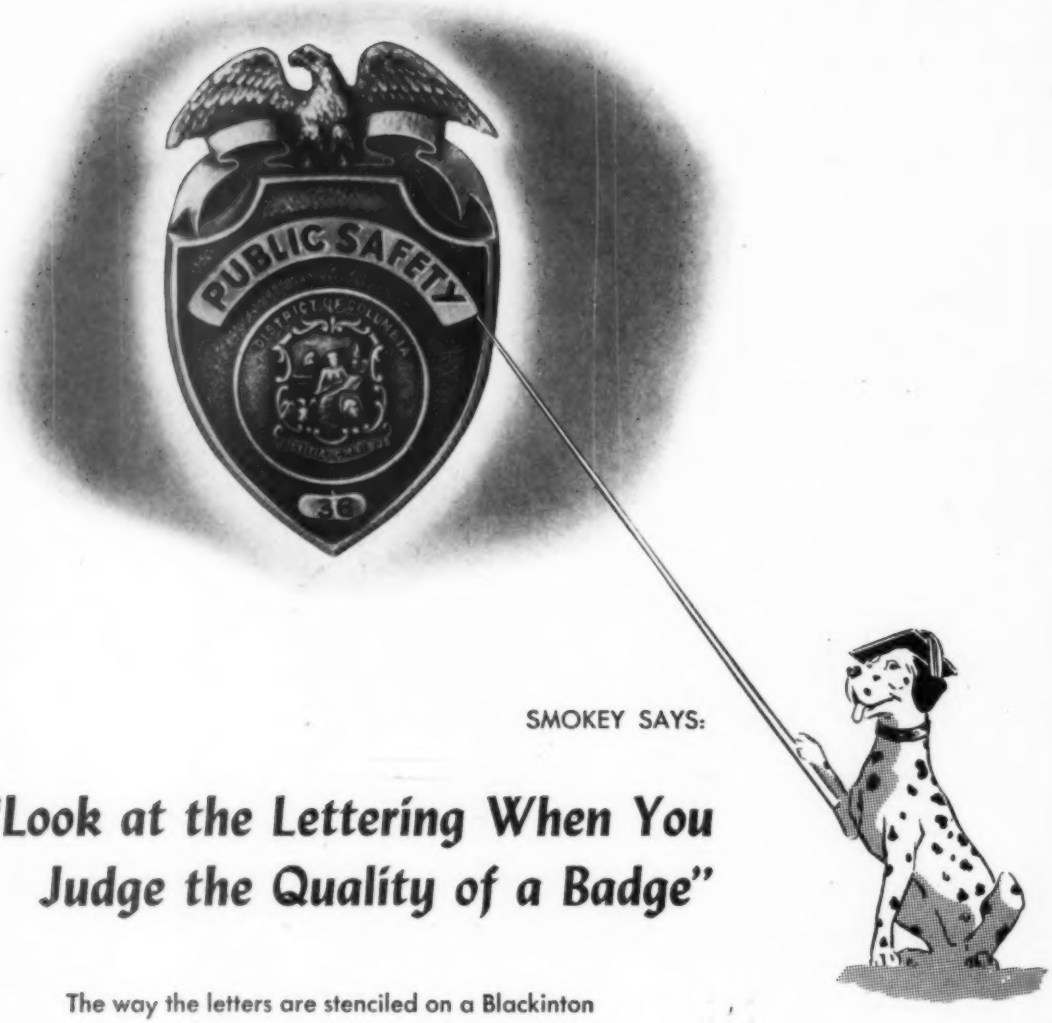

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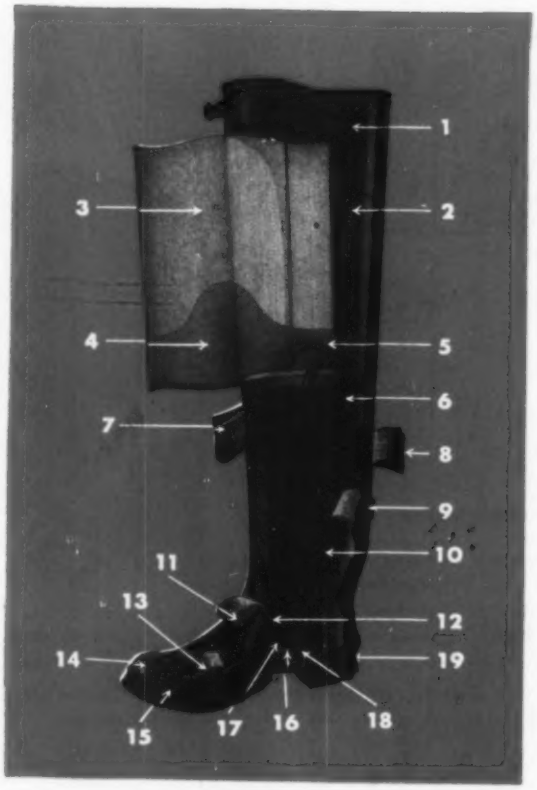

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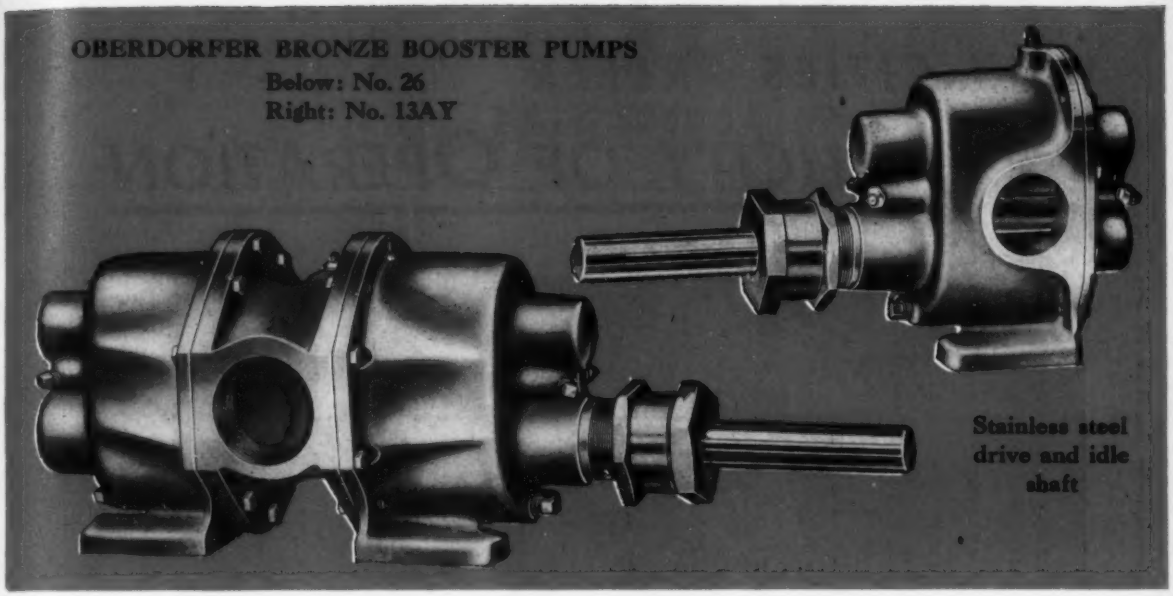

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FIRE ENGINEERING

MARCH, 1949 VOL. 102, NO. 3

With the Editor

Brother Boggs Has an Idea!

In municipalities of this nation where there is a local sales tax, the taxes are a deductible item in making out a Federal income tax return.

In such cities, the taxpayers' local taxes go to support the paid fire departments. But in municipalities in suburban and country areas, protected by volunteer fire companies, should you make a donation to the support of the local fire force, whether it be large or small, it is not a deductible item under the Federal Income Tax Law.

The volunteer fire forces, no less than the paid municipal departments, protect not only the property of all residents and local governments but also Federal and State property, post offices, institutions and other values.

Contributions to these volunteers in nearly all cases go to buy equipment, uniforms and other requisites of the fire fighter. So, the question arises, why should Uncle Sam demand his pound of flesh on such contributions?

In the 80th Congress, Representative J. Caleb Boggs (R., Dela.) introduced a bill to make these contributions exempt from Federal income tax. His bill got nowhere, despite widespread approval of the fire service, but he re-introduced it early in the year.

Representative Boggs did not have Maryland alone in mind when he wrote his bill. He was presenting a case for *all* the volunteer fire service, Pennsylvania, New York and New Jersey with their nearly half a million volunteer firemen as well as Delaware with its forty-five volunteer companies. He knows that in some communities a small share of municipal funds is given toward the support of the volunteers, particularly for the salaries of a handful of drivers of fire apparatus. The larger part of the bill is generally paid by contributors. Nevertheless our Federal tax law is so drawn that the contributions are not tax exempt.

In the United States as a whole, there are about 1,000,000 volunteer firemen of all classifications. There are about 100,000 paid and part paid firemen. There are around 14,000 volunteer fire departments (in many cases, it is true, the organization consisting of a single company) compared with the less than 2,000 fully paid departments.

When it comes to the responsibility for saving life and property, there is little difference between the paid professional and the volunteer fire fighter. Both are essential to the American form of government and American fire control.

Representative Boggs has this to say: "In nearly all the communities throughout the nation served by volunteer fire companies, our Federal Government has post offices and other public buildings and properties of tremendous value. For the protection of these public buildings from destruction by fire, our Government is wholly dependent upon the unselfish service of the volunteer firemen.

"I am not suggesting that these firemen be paid," he continues, "or that they receive any Federal subsidy, but I do say that we should enable these companies to raise larger sums of money by reason of tax exemption to donors so that our public property may be more adequately protected.

"Volunteer fire companies are to a very large extent educational organizations. For many years, in thousands of communities, they have conducted campaigns to educate the public in fire prevention. The number of lives and the property values saved from . . . preventable fires cannot be ascertained in dollars. Everyone who has ever lived in a rural community also knows that the very existence of a volunteer fire company represents an actual annual dollar saving to him by reason of fire insurance rates. Our Federal Government is enjoying the same saving on the insurance of its public buildings."

Representative Boggs has not stopped there; he and others have gone further—they have pointed out the injustice of the Federal Government levying a tax on fire apparatus bought with the funds of volunteers, or with money otherwise donated for the purpose.

It is too bad that the fire service, and the volunteer fire service in particular, hasn't more Representative Boggses in Washington!

Fred Sheppard

Breakage Characteristics of Tempered Plate Glass

Tempered Plate Glass Breakage Tests Disclose Valuable Factual Data for the Fire Service

Editor's Note: **The use of tempered plate glass in building operations has greatly increased in the last few years. Its wide application has brought added headaches to the fire service, already plagued with "streamlined" store and other building fronts in which glass construction figures prominently.[1]**

Readers of FIRE ENGINEERING will be interested in the first comprehensive tests conducted to determine the breakage characteristics of present-day tempered plate glass panels and in the conclusions and recommendations on how the fire service can best meet the problems raised by this product in connection with forcible entry, rescue and other operations.

The editors are indebted to the following for permission to use this material: The Chicago Fire Department, Michael J. Corrigan, Fire Commissioner and Anthony J. Mullaney, Chief Fire Marshal; the Fire Protection & Safety Engineering Department of the Illinois Institute of Technology, Prof. John J. Ahern, and the Pittsburgh Plate Glass Company, Mr. R. A. Miller, Technical Glass Representative.

TEMPERED plate glass door and window panels are being used more extensively in modern building construction and also in remodeling and modernizing older structures and, therefore, are being encountered with greater frequency in fire fighting operations.

The breakage characteristics of tempered glass are in many respects quite different from ordinary plate glass or window glass. This is due to the heat treatment given to the glass during tempering. The heat tempering process results in high tension stresses in the center of the glass and high compression stresses in the exterior surfaces. These compressive and tensile stresses balance each other and may be seen when the glass is subjected to polarized light. Sunlight from some angles produces polarized light. Therefore, at times, and under some conditions, the strain pattern in tempered glass may be visible as characteristic multi-colored lines or bands.

Fig. 1. Firemen Broke a 12-Inch Square Test Panel of Tempered Plate Glass by a Blow with a Claw Hammer. Service Clothing Canvas Supported One Foot from Exposed Edges of the Panel Was Neither Punctured Nor Cut.

Manufacturers claim that the special heat treatment given to tempered plate glass increases its strength and flexibility and its resistance to shock, pressures, impacts, and temperatures. It is said that tempered plate glass is approximately four times as strong *after* tempering as *before*. It is several times more resistant to impact and also will withstand, without breaking, a temperature of 650 deg. F. on one side of the sheet while the other is at ordinary atmospheric temperature. When broken, the entire sheet of glass disintegrates suddenly into relatively small crystals.

Breakage Tests

To ascertain the breakage characteristics which may affect fire department operations or procedures, a series of tests were conducted by the Chicago Fire Department in co-operation with the Illinois Institute of Technology, the Pittsburgh Plate Glass Company, and the Libbey-Owens-Ford Glass Company. Tests were held on the campus of the Illinois Institute of Technology on June 11, 1948. Acknowledgment is made of the exceptional co-operative spirit of the participating agencies, especially of the glass manufacturers who supplied all of the test material used for the tests.

Officials and representatives of the aforementioned organizations who were present and participated or assisted in the tests included the following:

CHICAGO FIRE DEPARTMENT
- Michael J. Corrigan, Fire Commissioner
- Anthony J. Mullaney, Chief Fire Marshal
- James M. Gleason, Superintendent of Maintenance and Equipment
- Captain Edward E. Newell
- Captain Harry H. Wolff
- Officers and Members of Hook & Ladder Co. 11 and Squad Co. 3
- A number of Division Fire Marshals, Chiefs of Battalion, company officers, and other personnel were present as interested spectators.

ILLINOIS INSTITUTE OF TECHNOLOGY
- Professor John J. Ahern, Head of the Department of Fire Protection and Safety Engineering
- Professor W. G. Labes, Department of Fire Protection and Safety Engineering

PITTSBURGH PLATE GLASS COMPANY
- Mr. Robert A. Miller, Technical Sales Representative, Pittsburgh, Penn.
- Mr. Edward H. Stein, Structural Glass Sales Representative, Pittsburgh, Penn.

Fig. 2. That a Running Pike Pole Stab Has No Effect on Tempered Plate Glass, the Chicago Fire Department Learned in This Experiment Where a Running Thrust Was Made at a 12-Inch Square Test Plate.

Mr. Robert F. Wells, Industrial Glass Sales Representative, Chicago, Ill.
Mr. Roy Nielsen, Architectural Glass Sales Representative, Chicago, Ill.

LIBBEY-OWENS-FORD GLASS COMPANY
Mr. Otto Wenzler, Manager, Sales Technical Service, Toledo, O.
Mr. C. E. Johnson, Manager, Tufflex Door Sales, Toledo, O.
Mr. Don F. Webb, District Sales Manager, Chicago, Ill.

A series of preliminary demonstrations using 12 inch square by ¾ inch thick panels of tempered plate glass were conducted partly for the purpose of determining probable results of the breakage sections and also to acquaint the participating personnel with the breakage characteristics of tempered plate glass and thus assure a smooth performance during later operations.

In the first test a tempered plate glass panel was arranged horizontally on a support a short distance above the ground. On opposite sides of the glass at a distance of approximately one foot from the nearest edge, two cloth samples were stretched vertically between supporting stakes; one cloth sample was waterproof canvas, the other being rubberized canvas. Both fabrics were of a type which is used in the manufacture of firemen's working clothes. The glass panel was broken by striking the upper face of it with a carpenter's claw hammer. Several strokes of the hammer were required; each succeeding stroke was struck with increasing force. On fracture, the glass particles or fragments which were projected endwise were stopped by the cloth and fell to the ground. There was no visible damage or cutting apparent at the places where the glass struck the cloth. The purpose of this test was to determine that the protection afforded by standard fire fighting clothing at a distance of approximately one foot was sufficient to withstand any possible cutting action of the glass fragments at this distance (See Photograph 1).

Another 12 inch square by ¾ inch thick tempered glass test panel was arranged in a vertical support and attempts were made to break it by using the cast steel point of a standard ten foot fire department pike pole. Repeated blows of increasing intensity failed to do any more than blunt the end of the cast steel pike. The glass panel was undamaged. (See Photograph 2).

A similar test was made using a panel of ordinary glass 1¼ inch thick. This glass shattered on the first blow, cracking into wedge-shaped fragments radiating from the point of impact. These glass fragments had very sharp edges and could easily have caused serious cutting or stabbing injuries (See Photograph 3).

Fig. 3. One Man Behind the Pike Pole Is Sufficient to Crash Through 1¼-Inch Thick Ordinary Polished Plate Glass. Note the Sharp, Jagged Edges of Plate Glass.

Fig. 4. The Chicago Fire Department Used an Acetylene Torch with Which a Hole Was Burned Through the ¾-Inch Glass Without It Breaking. Upon Cooling, the Glass Disintegrated But Did Not Scatter Fragments

Fig. 5. A Heavy Blow with the Fire Ax Again Proved That Tempered Plate Glass Breakage Is Not a Hazard to Fire Fighters.

Another test was made using a 12 inch square piece of tempered plate glass in a horizontal position in which a standard acetylene cutting torch was used in an attempt to melt a hole through the center of the panel. The glass was melted through, resulting in a hole about 1¼ inches in diameter and without any apparent damage to the remainder of the panel. On the advice of Mr. Robert A. Miller, Glass Technician of the Pittsburgh Plate Glass Company, the panel was set aside and allowed to cool with the expectation that at some time within a few minutes, the cooling process would upset internal stresses in the glass to a point where the panel would shatter completely. This action happened approximately fourteen minutes after the piece had been set aside to cool. (See Photograph 4).

Another test panel, supported vertically, was broken by using the pick point of a standard 8½ pound fire axe. Breakage was effected very easily by the sharpened and hardened forged steel pick point of the axe (See Photographs 5 and 6).

In all of these preliminary tests at least two opposing edges of each glass panel were unobstructed to allow sideward dispersion of glass fragments. In no case was there any extreme travel of glass fragments. The maximum distance observed appeared to be no greater than about three feet. It is thought that the small size of these test panels may have been a factor in the short distance of fragment travel.

Later in the series of tests, four 12 inch square tempered glass panels were dropped from a height of 35 feet from the main ladder of Truck No. 11. In every case the panel fell upon concrete sidewalk pavement. Because of the gusty wind conditions it was not possible to drop the glass in such a way as to strike edge downward. Each time, the glass squares landed flat or nearly flat on the pavement and glass fragments sped out for some ten to fifteen feet; those comparatively few fragments which rebounded upward appeared to reach their greatest height at about 13 feet 8 inches. These last-mentioned tests were made in an effort to substantiate or disprove a previously circulated report which claimed that glass fragments rebounded as high as 35 feet from tempered plate glass panels which were dropped on concrete pavements from a height of 20 feet (See Photograph 7).

Fig. 6. The Breakage of Tempered Plate Glass Is in Rock-Candy-Like Pieces Which May Interlock to Form Chunks Approximately Two Inches in Diameter. The Pieces Have No Sharp Edges and Can Be Handled Without Danger of Cutting.

Also in this series of demonstrations on small 12 inch square panels, a C-Clamp Boiler Plate Punch was used to exert pressure near one edge of the pane to cause breakage. Forcing the screw of the C-Clamp into the glass by the aid of a 14 inch Stillson wrench, the test square fractured completely with only a very moderate amount of edgeward dispersion of the glass fragments.

Fig. 7. To Disprove a Previous Report That Tempered Plate Glass Panels Dropped on a Concrete Pavement from a Height of 20 Feet Resulted in Fragments Rebounding as High as 35 Feet, Four Panels Were Dropped from a Height of 35 Feet to the Concrete Sidewalk.

Major Tests

TEST A

Purpose: To determine the pattern of fragment dispersion of tempered plate glass doors. Door in open position with vertical edges exposed. Breakage by C-Clamp Boiler Plate Punch to avoid imparting kinetic energy to fragments.

This was to demonstrate the possible hazards of normally opened tempered plate glass doors during fire fighting operations where there is a possibility of accidental damage or breakage by fire department tools, hose butts, etc., moving in or out of the doorway. Also to indicate the desirability of removing or protecting the door panel as a salvage practice to minimize property damage.

Action: The first major test consisted of breaking a standard three foot by seven foot tempered plate glass door while at the door was in a normanlly opened position. The ¾ inch thick door was equipped with standard hinge hardware having full width top and bottom channels common to this type of door. It was supported in a channel steel frame supplied by the Pittsburgh Plate Glass Company. A number of 12 inch square metal pans or buckets were arranged in an irregularly shaped grid pattern about ten feet wide and twenty-five

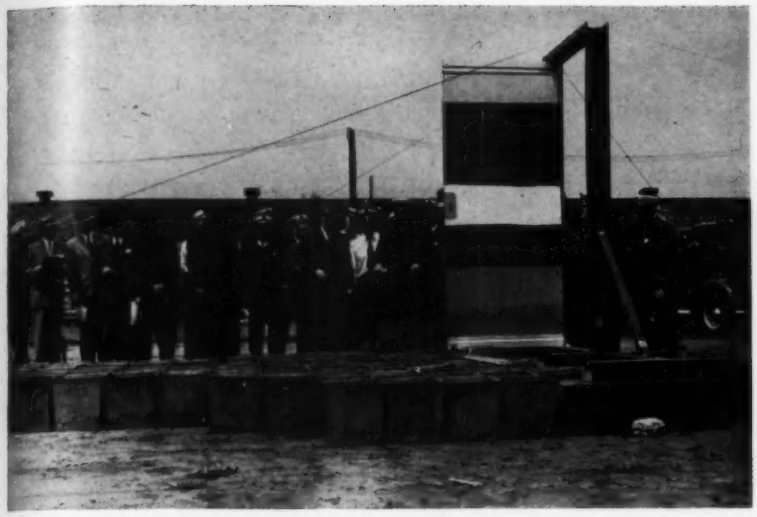


Fig. 8. A Standard ¾-Inch Thick, Three-Foot by Seven-Foot Tempered Plate Glass Door Panel in Wide-Open Position Just Before Being Broken by C Clamp Boiler Plate Punch.

feet long to catch fragments of the glass door at the time of breakage. Horizontal bands of different colors, each a foot in width, were painted on both faces of the door which was three feet wide and seven feet high. This was done in an effort to determine which parts of the door panel traveled furthest from its original position in the whole door. The door was broken by exerting pressure on a boilermakers C-Clamp Punch at the lower outward corner of the door. The Clamp Punch was operated by means of a ten foot extension rod and lever bar arranged at the outer end of the rod.

Result: By observation, about three quarters of the total pane of glass fell within less than five feet of its original position. Smaller amounts of glass fragments were projected greater distances, the most remote particle landing about twenty feet from its original position in the door panel.

An unlocked and open tempered plate glass door would normally be standing in this position during fire fighting operations. Because of the possibility of being broken by heavy fire department tools and equipment it is suggested that steps be taken to protect the exposed edges of doors in that position from accidental breakage, or, if convenient, to remove door from frame and place in a location safe against accidental breakage. More detailed reports of dispersion of glass fragments are contained in the report prepared by Professor W. G. Labes of the Illinois Institute of Technology. (See Photographs 8, 9, and 10; also Conclusions of Illinois Institute of Technology.

TEST B

Purpose: To determine the effectiveness of a standard fire department type pike pole, ten to fourteen feet long, in breaking tempered plate glass doors. Door in normal closed and locked position. Dispersion of glass fragments and relative amount of retained fractured panel to be noted to determine restraining effect of doorjams.

Action: A new door panel was insterted in the door-frame, door being in a normally closed and locked position. A standard fourteen foot pike pole was used in an attempt to break the door by striking the face of the door with the pike point of the pike pole.

Result: After about ten blows, a second firemen assisted the first man in swinging the pike pole against the door face. At the end of about twenty blows, the door face was undamaged except for a few surface scratches and the cast iron pike point of the pike pole was definitely blunted. (See Photograph 11.)

TEST C

Purpose: To determine effectiveness of pick point of fire axe in breaking a tempered plate glass door panel. Door in closed and locked position.

Action: Using the same undamaged door panel, the pick point of a standard 8½ pound fire department fire axe was used to break the door panel. A fireman working with his back and shoulder toward the door face, swung the axe in such a way as to strike the door panel about knee-high.

Result: The door immediately shattered but remained in position except for a small section about eight inches wide fourteen inches high at the point of impact where the axe head forced the glass out of position. The shattered glass panel was easily cleaned out of the door frame by using the axe head to push out the broken fragment. (See Photographs 12 and 13.)

TEST D

Purpose: To determine the effectiveness of a standard 26 foot fire department ladder fitted with a metal heel plate and used as a battering ram in breaking tempered plate glass door panels.

Action: With a replacement door panel in position, atempts were made to break it, using the metal-reinforced heel of a 26 foot ladder as a ram. The ladder, carried by two firemen, was used to strike the door face. After eight or ten blows with no apparent effect, two additional firemen were assigned to help wield the ladder.

Result: The combined effort of four men plus the weight of the ladder, approximately 120 pounds, was not sufficient to break the door panel. The force of the impact against the glass was sufficient to break one of the four ¼-inch stranded steel cables guying the steel channel doorframe. Breakage again was effected very easily by the pick point of a standard fire axe. (See Photo 14.)

TEST E

Purpose: To determine the effect of heat (more than annealing temperature) on breakage characteristics of tempered plate glass door panels.

Action: A replacement door was installed in the frame opening and a sheet metal oven was attached to one face of the metal doorframe. The oven consisted of a metal box of fourteen gauge steel approximately three feet wide, one foot deep and seven feet high. There was an air space of four inches between

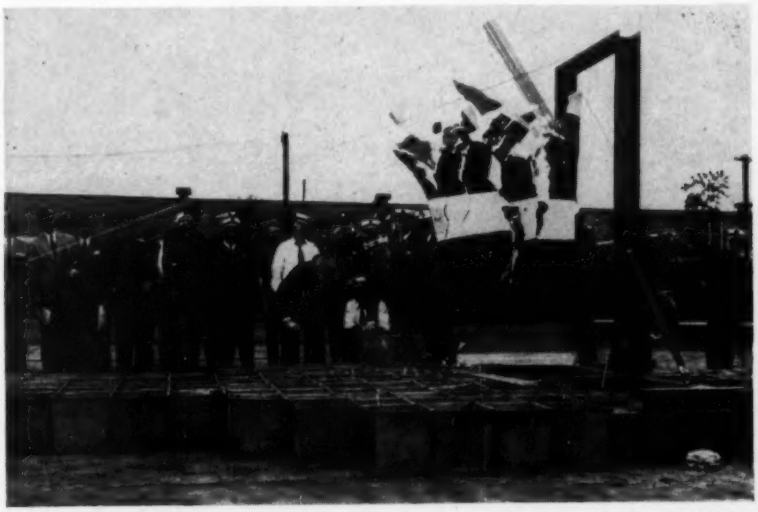


Fig. 9. Seven Distinctively Colored Strips Were Painted on the Tempered Plate Glass Door to Determine the Pattern of Fragment Dispersion by Means of Unit Containers. Breakage Was Accomplished by a Clamp Punch to Eliminate Imparting Kinetic Energy to the Fragments. Purpose of the Test Was to Demonstrate Hazards of Breakage by Fire Department Tools, Hose Butts, Etc., Being Moved Through an Open Doorway.

Fig. 10. Glass in the Lowest Color Band Adhered to the Bottom Hinge Channel. From the Position Shown, It Is Indicated That Care Should Be Taken to Avoid Falling Hardware.

the surface of the glass and one face of the oven. The metal parts of the oven except that section opposite the glass were insulated with Foamglas thermal insulation. This was done to conserve the heat which was generated by two kerosene-fired Hauck pavement heaters. A thermocouple was placed in the center of the air space between the glass and the oven. It was desired to bring the temperature of one face of the glass to 1,000 deg. F. but, because of the limited capacity of the heaters, it was only possible to raise the temperature of the air space between oven and glass panel to about 670 deg. F. after one hour of heating time. When it was no longer possible to increase the temperature in the air space previously mentioned, the heat was turned off and after waiting several minutes to permit the heat to fracture the panel (which did not occur) water from two hand pump extinguishers was directed against the outer face of the glass door.

Result: The glass immediately disintegrated upon application of the cool water streams but remained in position. Due to expansion on the heated surface there was a pronounced inward bowing of the entire door panel. This is a normal characteristic of any thick panel when subjected to a considerable amount of heat on one side, because the heated side expands more than the cooler side of the panel. This door panel remained in position until dislodged by the use of a standard fire axe to push out the fragments.

Conclusions

Tempered plate glass door panels are considerably more expensive than any similar size glass panel doors. Each door is, in a sense, custom-built, and the cost of installation varies between four hundred and six hundred dollars each. The time necessary to repair a replacement and install it may be as long as four to six weeks. Therefore, whenever it is necessary and conveniently possible to gain entrance other than through closed and locked tempered plate glass doors, the alternate means of entrance is to be taken in every case.

Tempered plate glass doors frequently have narrow tempered plate glass wing panels installed in the doorway opening. These panels should be treated in the same manner as the door.

Whenever it may be necessary to break tempered plate glass panels, such breakage can be effected most easily by the pick point of a standard fire axe. The operator should wear a suitable face shield, if one is available, as a protection against eye injury, or should turn his face and head away from the door as glass is being broken. It was observed in one of the tests in which the door panel was broken by an axe that a few particles of glass adhered to the exposed back of the neck of the fireman using the axe. These particles were not large enough to produce any cutting action but they could have caused serious eye injury had they contacted any of the inner eye surfaces.

The use of sharp-pointed instruments of hardened metals is most effective in breaking tempered plate glass panels.

Blunt faced instruments of unhardened or untempered metals have relatively little effectiveness in breaking tempered plate glass.

Most of the fragments from the edges of a broken tempered plate glass panel are dispersed in a plane parallel to the surface of the panel. The usual framing of the door panel limits, or prevents entirely, the sideward flying of these fragments.

Metallic hinge fittings and framing at upper and lower edges of the door prevent any dispersion of top and bottom edge fragments.

Care should be taken to avoid injury from falling upper hinge hardware.

Fragmentation of the tempered plate glass is in small granules with relatively obtuse points and blunt edges, while plate glass breaks into much larger sharp-edged and pointed pieces having sufficient weight and force to cause serious cuts or stabbing injuries.

It appears that there is considerable less hazard involved in breaking a closed and locked tempered plate glass door panel than there is in breaking ordinary plate glass panels of the same size.

Conclusions Reached by The Illinois Institute of Technology

One basic conclusion, arrived at even before the tests were performed, is that fire department policy should be to use every other available and equally effective means of entry before deciding to gain entrance through an opening blocked by a tempered plate glass door The cost of and probable delay in replacement of door or doors and other fixtures of similar construction seems to warrant this consideration.

Conclusions Resulting from Test A

1. The results of this test are indications of what can be exepected if a tempered plate glass door is accidentally broken while in the wide-open position.

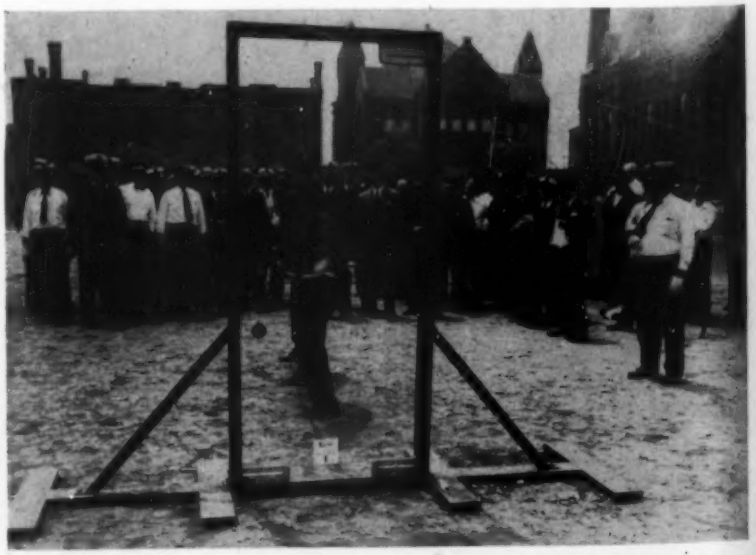


Fig. 11. The Pike Pole, 14 Feet Long, Was Ineffective in Breaking the Tempered Glass Door as This Picture Taken at the Climax of the Effort Demonstrates. Note the Arch That Resulted in the Pole When Two Men Made a Rushing Onslaught Against the Door.

More accurate information can be gained only from additional tests of this kind.

2. There is a general tendency for most of the smaller particles to be projected in the plane of the door. This tendency appears to be more predominant for Edge Slivers than for any other glass particles described in this report. Samples of Crystals were found 5½ feet in each direction normal to the plane of the door.

3. As far as injury to a person due to being struck by large slabs of glass or upper hinge hardware is concerned (one full-length hinge channel weighs about 12 to 15 pounds; one corner hinge plate weighs about 3½ pounds), the minimum safe distance appears to be 4 feet from any portion of the door. Examination of Photograph 9 will bear out this point. The yellow and green color bands on the door, representing almost 50 pounds of glass dropping from 5 to almost 7 feet above the floor, disintegrated quickly, well before the remainder of the door did so. Approximately 95 per cent of the yellow glass and 93 per cent of the green glass by weight, was found within 3½ feet of any portion of the door.

Fig. 12. What the Pike Pole Failed to Accomplish in Breakage Is Done with a Light Blow by the Pick of a Fire Ax. A Lacy Pattern Is Formed in the Remainder of the Panel Which Stood Intact Until Knocked to the Base Without Any Scattering of Glass.

Fig. 13. A Close-Up of the Tempered Glass Door Broken by a Pick Ax Reveals Concentric Fracture Line Pattern and Uniform Size Crystals Retained in Frame. Fragments Knocked Through Frame Are Uniformly Small and Without Sharp Points or Edges.

4. A person 4 feet from any portion of the door (as stated in Conclusion No. 3) would no doubt be showered with edge slivers, crystals, chips, and fine fragments of glass. Photograph 9 shows that the edge slivers are under way well before the remainder of the door falls. It is indicated that particles from the upper half of the door (yellow, green, brown and white) travel at velocities estimated to be between 12 and 25 feet per second. The determination of just what velocities can be considered as "dangerous" and "not dangerous" is beyond the scope of these tests and of this report. However, regardless of velocity, if any glass particle should strike the eye, the situation probably would be serious. A reasonably safe distance to avoid contact with any glass particles appears to be at least 15 feet from the front or rear edges of the door and 8 feet from either face of the door in wide-open position.

5. None of the information in Test A should be considered as indicating, in any way, the degree of ease with which a tempered plate glass door may be broken accidentally.

Fig. 14. Repeated Blows of the Heavy Metal-Shod Heel of a Heavy-Duty Fire Department Ladder Used as a Battering Ram by Four Firemen Failed to Break the Tempered Plate Glass Door.

Conclusions Resulting from Tests B and C

1. The standard fire axe appears to be the safest and simplest standard fire department forcible entry tool to break through a closed and locked tempered plate glass door[3]. The proper position, stance, and motion of the operator can readily be worked out from the information stated in the body of this report.

2. Care should be exercised in removing a door from its frame, after fracture in a closed and locked position, to avoid being struck by upper hinge hardware and slabs of falling glass.

3. A standard pike pole or the metal-reinforced heel of a fire department ladder are ineffective tools to break a tempered glass door[3].

Conclusions Resulting from Test D

1. The test was not performed as originally planned, hence the expected information is not available.

2. A tempered plate glass door may be heated to an average temperature of 670 deg. F. on one side and will remain intact, except for warping toward the hot side.

3. A tempered plate glass door, heated to an average temperature of 670 deg. F. from one side, may be fractured and eventually knocked out of its opening by directing a jet of water at its cold surface[4].

(*Continued on page* 218)

Nine Killed by Unusual Explosions and Fire in Kansas Power Plant

Disaster Cuts Current in Large Area; Topeka Firemen Face Serious Emergency

A STAFF REPORT

EDITOR'S NOTE: The following account of the explosion and fire which wrecked the Tecumseh Plant of the Kansas Power & Light Company demonstrates the dependence of today's citizen, and today's fire fighter, on electrical energy.

Fires are no stranger to even the most modern of electric light plants; nor is sudden death. But this is believed the first time in history where explosion, followed by fire, created in turn additional explosions, to kill and injure so many persons, and to deprive such a wide area of electricity.

As is so often the case, the press and other public accounts of the disaster dwelt upon every phase of it except the effect of the accident upon the fire protection throughout the area threatened by the stoppage of current, and the operations of the fire service at the scene of the tragedy. Nor did the accounts attempt to review the measures taken by the fire forces most concerned with the emergency, the Topeka Fire Department, to meet and cope with the unexpected threat which faced the city when power failed.

In the effort to present these facts for our readers, the editors sought the aid of the man most qualified to supply them, Fire Chief William J. Cawker, head of the Topeka Fire Department. In the main, this is Chief Cawker's own story told, insofar as possible, in his own words.

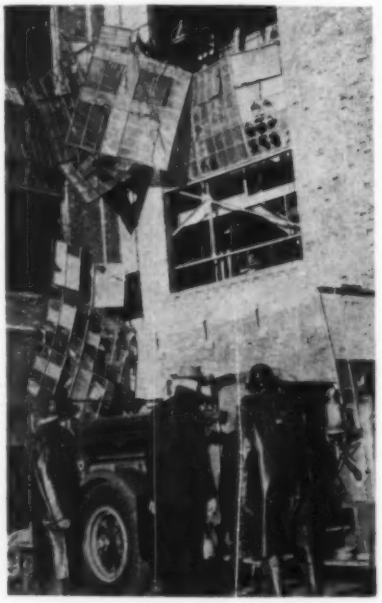
AT 3:15 on the afternoon of Thursday, December 9, 1948, everything was running smoothly at the huge Tecumseh plant of the Kansas Power & Light Company, about five miles east of the City of Topeka, Kansas.

Employees of three construction companies were engaged in various tasks in connection with the company's multi-million dollar expansion program. The day shift of company employees was in its final hour of operation for the day while workmen of the evening shift were on their way to Tecumseh.

At 3:21 o'clock the plant was rocked by a series of sudden explosions which filled the air with smoke and dust. Twisted window frames and glass panes were blown violently from their mountings while the terrific concussion of the explosions dazed workers throughout the building. The plant was plunged into immediate darkness; the air was filled with excited cries of workmen groping in search of those they had been with a few minutes before. Flames leaped through portions of the wrecked structure.

The explosions ended as abruptly as they had begun, leaving only havoc. The scene was a shambles of debris, fire, smoke and steam. Glass littered the area for hundreds of feet from the building; smoke poured from the shattered windows and doors.

At 3:20—3:21 o'clock everything operated by electrical energy supplied by the plant stopped. Motors, heating appliances, etc., went dead, as did communication facilities not operated from storage batteries or standby gasoline or diesel driven power.



Topeka Firemen Operate Pumpers in Midst of Power Plant Wreckage

Pumpers of the Topeka Fire Department drafted water from the basement of the shattered Kansas Power & Light generating plant to extinguish fatal fire.

The plant, which services electric power to all of Kansas west of Great Bend, north to Nebraska, south to Oklahoma and east to Missouri, is located on Route 40, and the bank of the Kansas River. The vast concrete and steel structure is part eight and part five stories in height, with heavy walls pierced by large metal casement windows. Construction is typical of present day large-scale power plants. Approximately 150 men were working in or near the building at the time of the tragedy, sixty of them being power plant employes. The others were construction men working on a new addition.

Witnesses agree that the initial explosion was not as severe as the one which followed almost immediately and which shattered the plant. This blast was in turn followed by further explosions—some of them attributed to escaping gas from ruptured mains which became pocketed and was ignited by the fire which followed the heavier explosion.

Fast and heroic work by plant employes who remained uninjured during the first five minutes after the tragedy struck, reduced danger to personnel and plant. Gas and oil valves were closed; pressures were reduced on operating boilers; turbines were shut down; plant auxiliaries were stopped. All this was being done as rescue efforts were undertaken. Even before all the bodies had been removed, arrangements were under way to restore services to areas then without electricity Emergency municipal and private forces were quickly on the scene and in one hour and thirty-six minutes current was flowing through circuits into Topeka hospitals, the energy being brought in from other company plants and over interconnected transmission systems of the Company and other electric utilities.

Eight men were killed in the initial explosions and ensuing fire. One died later from burns and internal injuries. Many of the bodies were buried under concrete slabs and debris. In addition to the fatalities, sixteen injured required hospitalization, suffering from lacerations, fractures and burns.

The first call received at Topeka fire alarm headquarters came by phone, at 3:26 P.M. According to Chief William Cawker, this was five or six minutes after the first explosion. When the Chief had opportunity to observe later, it was noticed the clock in his office had stopped at exactly 3:21 P.M. Stoppage of electrical current did not affect the fire alarm system of Topeka which was able to operate on the storage batteries during the period the electric service was off.

In his report to FIRE ENGINEERING, Chief Cawker makes a very interesting observation. This bears upon his decision not to personally go out to the plant—a step which in view of the excitement attendant upon the disaster was not easy to take and which almost any chief would have found it easy to disregard. Chief Cawker had sound reasons for his action, however, most important of which was the serious situation that might develop in his own city, and the immediate action that had to be taken to guard against any calamity befalling the city as a result of the disruption of the power supply.

Topeka is a city with about 30,000 habitable structures, Chief Cawker points out; eighty per cent of these buildings use natural gas for heating

purposes. Thousands of heating appliances are thermostatically controlled and equipped with motor-operated gas valves. Chief Cawker envisaged the potentiality of numerous fires and explosions when persons ignorant of the operating principles of these devices would attempt to stimulate the flow of gas in their heating equipment.

Added to this hazard, reports Chief Cawker, was the bringing into use of thousands of candles, oil lamps, oil lanterns, and oil heaters; the burning in fireplaces of light combustible materials with subsequent emission of sparks which might ignite combustible roofs The temperature was below freezing and colder weather was predicted. There was no telling how long the power would remain off. Under these conditions, the department anticipated plenty of trouble, should the emergency continue for any extended period. Fortunately, however, power was restored without the Chief or his forces having to meet the anticipated activities.

The operations of the Topeka Fire Department are tersely described by Chief Cawker, in his report to this journal. He says: "As is our custom when receiving calls for assistance from locations beyond the corporate limits, I authorized the response of one engine company and an Acting Assistant Chief. Our Superintendent of Fire Alarm was acting in the capacity of Assistant Chief due to the absence of one of the regular Assistants, and it was he who responded and directed the work of rescue and fire control as far as the fire department efforts were concerned.

"As the plant is located a good five miles east of the city, it was several minutes before the Acting Assistant and the first engine company arrived at the plant. In the meantime our switchboard was being swamped with calls for help and we began to realize that something really serious had happened. Immediately upon arrival at the scene of the disaster, the Acting Assistant Chief put in a radio call for two additional engine companies as a considerable area of the plant was involved in fire.

"The main difficulty in fighting the fire was the lack of water. The plant had on the grounds a 50,000-gallon water tank and several hydrants which were supplied from the tank. However, this water supply to the hydrants was controlled by electrically operated pumps located inside the plant. Explosions had wrecked the water main entering the plant and consequently there was no water in the mains and the pumps were inoperative.

"No provisions had been made for taking suction directly from the tank and the only water available was in an ash pit inside the structure into which water from the broken main was flowing. Our men experienced some difficulty in getting the pumpers close enough to that portion of the building in which the ash pit was located due to the debris which was strewn about from the force of the explosion. They did not take suction from the Kansas River near the plant, as it was impossible to get apparatus close enough to the stream for such purpose.

"The fire was under control in about an hour and a half, and two of the engine companies returned to quarters while one company remained to extinguish subsequent outbursts from burning debris, and to continue the search for bodies which were still in the wreckage. It was about eleven o'clock when the last body was found and all employees and workmen accounted for.

"As to what caused the initial explosion has not, up to this time been fully determined. Power Company engineers are still investigating for a probable cause; in fact, they have called in investigators from the Bureau of Mines and other experts to assist in trying to determine what caused the first blast.

"The initial explosion did not cause much destruction, but was of sufficient force to disrupt a twelve-inch gas line entering and running exposed through the room where it (the blast) occurred. A large volume of gas, flowing quickly from the broken main, spread to all parts of the structure and as it became pocketed in various areas one explosion followed another and soon the huge plant was a shambles.

"Immediately the extent of the catastrophe became known, rescue and relief agencies swung into action. Difficulty was experienced at the outset over the lack of communications facilities, the nearest usable telephones being at some distance. After arrival of radio-equipped police and fire vehicles essential contact was maintained by air.

"Every available ambulance in the area was rushed to the scene to speed the injured to Topeka's three hospitals. All available police were concentrated in the area and their services were required as friends and relatives of plant and construction employees, and thrill seekers crowded the highways to the plant and jammed into the area.

"By early evening, Kansas Power & Light Company crews were rushing to Topeka from all parts of the state to make repairs. Contractors and workmen of the Bennett Construction Company, which was engaged in the plant construction program, were shoring up sagging floors and weakened walls, boarded up broken windows, etc."

CHICAGO GAS PLANT BLAST INJURES 100

Nearly 100 persons were injured, some seriously, on January 28, 1949, by a severe explosion in the mixing plant of the People's Gas Light & Coke Company, 2250 S. Racine ave., Chicago. The blast, which was quickly followed by fire, tore out the north wall of the three-story brick and steel structure, scattered debris for several hundred feet in every direction and broke windows as far as a mile away.

Many of the injured were employes in the nine-story office and storage building of the Commonwealth Edison Company at 2333 Throop street, which is separated from the mixing plant by a spur railroad track. Virtually every window in this large building was shattered. Fire, however, did not communicate to it.

The mixing building is one of a number of rambling structures located in the block bound on north by Cermak road, east by Racine ave. and south by the Chicago River. The mixing plant housed four generators, used to manufacture water gas and to re-form natural gas. Two of the generators were in operation, one was idle, and one was being cleaned at the time of the explosion, which came without warning.

An employe of the Commonwealth Edison Company said that he was looking out the window of his building just before the blast, when he saw some yellow smoke coming out of the gas plant chimney. This turned white in a great puff; there was a terrific rumbling and he was knocked down as the window was blown in.

Fire, which followed the explosion, communicated to two gas storage tanks

General View of Blasted K. P. & L. Co. Generating Plant

Force of explosion (origin unknown) blew out heavy windows, ripped up concrete floors and dislodged walls of Tecumseh, Kansas, power plant. Fire which followed blast, burned out combustibles of much of the big building. Nine workmen died.

in the yard. Firemen quickly extinguished this, however, before it could extend to piles of coal, which lined Racine ave. and occupied much of the space between the gas plant and the Commonwealth building. They also prevented extension of the fire to other storage tanks in the property and the large gas retort at the corner of Cermak road and Racine ave.

The more seriously injured, including more than a score of Commonwealth employes, were removed to Passavant Hospital while more than 50 others were reported to have been treated in emergency wards set up in the vast building. It is reported that Commonwealth employes kept in touch with the main office by means of "walkie-talkies."

Immediately following the accident, at first reported of considerable magnitude, the Police put into effect "disaster plan No. 5" which sent to the scene 25 squads and five combination squad-patrol cars, the latter capable of use as ambulances. A complement of fire companies with fire squad cars were quickly on the scene and operated heavy streams to kill the fire in the mixing plant, and protect exposures. Fire Commissioner Michael J. Corrigan was in charge of the fire fighters.

The Commissioner estimated the damage at $250,000. Officials of the gas company reported the explosion did not affect gas storage and there would be no interruption of service. They did not advance any reason for the explosion.

Chicago's Commonwealth Edison Building Blitzed

Scores of persons were injured when explosion in People's Gas plant shattered windows of huge Commonwealth Edison building. View is taken looking from gas plant across coal storage which was threatened by the fire following the explosion.

Chicago Firemen Control Fire Following Gas Plant Blast

Shattering explosion in People's Gas Light & Coke Company plant was followed by fire which threatened gas holders, coal storage and other property. Picture shows wrecked mixing building with fire under control.

Fire-Extinguisher New Fluid Safe in Ventilated Places

A fire-extinguishing vaporizing liquid known as chlorobromomethane, a chemical compound containing chlorine, bromine and methane, is effective and safe to use in well-ventilated places but may be a hazard in closets and small rooms.

This is the conclusion of Underwriters' Laboratories, Inc. It is based on extensive studies made to determine the life hazards of the fumes evolved by this chemical in contact with flame or hot surfaces under fire conditions likely to be encountered in practice. The complete results are given in a recent bulletin issued by the laboratories.

The chief gaseous decomposition products of chlorobromomethane applied to gasoline, ethyl alcohol and wood fires, and to gas flames, hot iron surfaces and electric arcs, include hydrochloric acid, hydrobromic acid, carbonyl halides, and in some cases free chlorine and bromine. The concentrations obtained depend upon the quantity of chlorobromomethane applied, the fire conditions, and the degree of confinement of the fumes.

The odor of chlorobromomethane resembles that of chloroform and can not be said to give adequate warning of danger. One quart of the chemical on evaporation produces nearly 12 cubic feet of vapor at ordinary room temperature. In a room of 1,000 cubic feet capacity, the resulting concentration of vapor will be in the order of 1.2% by volume. In concentrations of 0.8% to 1% by volume in air the vapor has marked and prolonged anesthetic effects on guinea pigs.

The concentrations of chlorobromomethane vapor resulting from the application of this extinguished chemical to fires occurring in open places may not endanger life on temporary exposure, the report states, but when used in unventilated places, operators and others should take precautions to avoid the effects which may be caused by breathing the vapor or its decomposition products.

SCIENCE NEWS LETTER, *January* 1, 1949.

Fire Department Honors Dead Heroes

Fallen war heroes in Grand Rapids, Mich., are remembered by memorials in churches, schools and other buildings. The city also honored the one member of its fire department to lose his life in World War II. Firefighter Clair Evans, of Engine 3, who died in action in 1945, had the department's new $21,000 ladder truck dedicated to him.

This practice of honoring war heroes and other local celebrities, which is gradually spreading throughout the nation, had its origin, it is believed, in the south. Memphis, Tenn., long ago dedicated fire apparatus to locally prominent persons. The practice of naming apparatus after deceased members of the fire department, however, is more recent.

FREMONT, OHIO, FIRE THREATENS ENTIRE HIGH VALUE DISTRICT

Firemen Hampered by Glass Construction As Well as Lack of Tall Ladders

A Staff Report

ONE fireman was killed and three others injured in a spectacular fire which raged out of control for seven hours, to destroy Joseph's Store, Fremont, Ohio, recently. Heavy damage was done to four other establishments in the heart of downtown Fremont. The property damage was estimated at $750,000, with the Joseph store's loss set at $275,000 by Fire Chief Urban A. Myers.

The near-conflagration resulted in firemen having to meet a number of situations which were somewhat out of the ordinary for the hard-pressed fire fighters.

The structures involved—five in all—were: Joseph's Store, 65 ft. x 135 ft., three stories; Miller-Jones Shoe store; Nobil's Shoe store; Joseph's Wall Paper and Paint store, and Bintz's ladies' ready-to-wear store. These four establishments were all three stories in height, of 35 ft. frontage x 100 ft. depth. They all faced Front street with the Joseph Store at the corner of Front and Garrison. All were of brick and wood joist construction; partitions were of wood with metal lath and plaster; all had wood floors and were well stocked with holiday merchandise.

Two years ago a new concrete addition was built in the rear of the old Joseph establishment. There were no walls between the new and the old structures—the new building being three stories in height, measuring 75 ft. x 75 ft. A feature of this new addition's construction was the liberal use of modern glass block, which was run along the side of the building, and in the stair wells. These blocks and a heavy glass panelling gave the firemen considerable trouble, according to Chief Myers.

The wall between Joseph's Store and the adjoining shoe store was of brick construction, with fire doors, but the joists were 2 in. x 10 in. for roof support, and ran through the wall. The fire communicated to the row of old landmarks on Front street from the Joseph's store by means of these openings and by way of a drop ceiling in the shoe store, which provided a 5 ft. concealed space the width of the structure. Starting in the old Joseph building, the fire quickly involved that structure, and the new addition, then worked under and through the roof areas of the four Front street establishments. The fire's progress was finally stopped at the Kresge store at the corner of Front and the alley (see diagram).

The fire was discovered at 11:20 P.M. near the front of the first floor of the department store by three young men returning from work. They saw smoke and heard a burglar alarm ringing within the Joseph Store. At about the same time the automatic burglar alarm set off a signal at police headquarters and the responding Police saw the fire, and notified the fire department.

According to Chief Myers, evidence indicates the fire was apparently caused by overloading of the wiring system. The burglar alarm circuit doubtless opened as a result of the fire, to flash its signal to the police central office.

Upon responding, Chief Myers, whose total force is sixteen full-time and two call men, sized up the threatening situation and immediately sent out mutual aid calls for help to the following cities: Sandusky, 22 miles, Tiffin, 18 miles; Clyde, 8 miles; Bellevue, 16 miles; Port Clinton, 16 miles; Gibsonburg, 12 miles; Fostoria, 28 miles, and Toledo, 32 miles distant. These calls did not go out at once, but were dispatched as the progress of the blaze necessitated. Pumpers from Fostoria, Tiffin, Port Clinton, Clyde and Bellevue were put to work on the fire while Sandusky forces 'covered in' at fire headquarters. Gibsonburg and Toledo pumpers were not used, but the men of the former department stretched and operated hose lines, and Toledo's aerial truck rendered good service in the later stages of the fire.

Toledo Truck Makes Record Run

The Toledo Fire Department was alerted at 1:00 A.M. At 4:00 A.M. Chief Myers, called for help, asking especially for long ladders, explaining that ladder equipment at hand was inadequate to reach the tops of the 3-story buildings. Chief Patrick Daly of the Toledo Fire Department, on orders of Edward A. DeAngelo, Safety Director, dispatched the 65-foot aerial from Station 7 and a pumper from Station 6 in East Toledo. The pumper left at 4:48 P.M. and the ladder truck at 5:20 P.M. It is reported that this is the first time in nine years that Toledo apparatus has been sent to help fight a fire in another city. It was the first time in the memory of veteran Toledo firemen that more than one piece had been sent—and the first time an aerial ladder had ever left the city. The run of over 30 miles is believed to set up some sort of record for mutual aid response for that type of equipment.

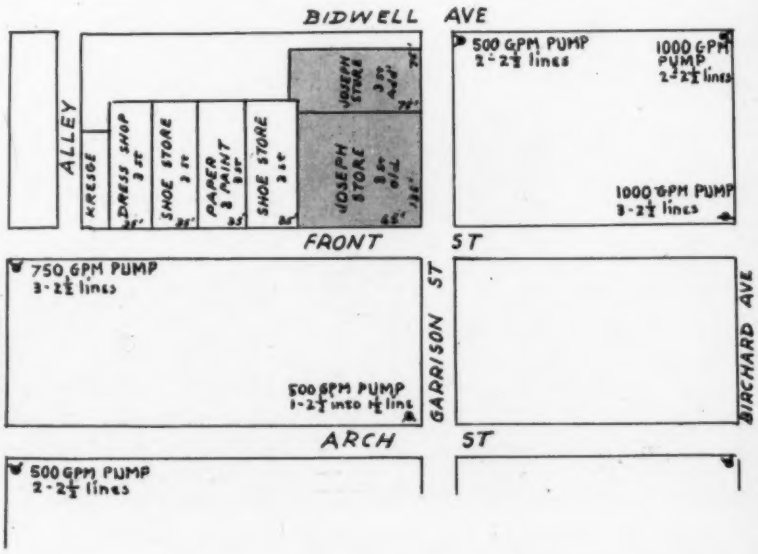
Fremont firemen, upon responding, found the old Joseph building heavily charged with smoke, with the fire apparently eating its way up through the walls and vertical openings. Considerable difficulty was experienced in getting at the fire in the addition because of inability to force the glass block and panels in front of that section. A small canopy around part of the Joseph Store was used in an effort to direct streams into the second floor, and it was in this operation that Fireman George Kettner was killed.

Kettner was reported to have been standing with one foot on the small canopy and one on a short ladder, up which a charged line had been stretched when the stream in some way struck him in the head, knocking him from the ladder. Two other firemen who were on the ladder with him were uninjured. It is believed that the force of the stream, not the fall, was the cause of his death—attributed by doctors to a fractured skull. Kettner died in Memorial Hospital at 12:30 A.M. without regaining consciousness.

The fire was pronounced under control by Chief Myers at 6:30 A.M. The combined fire forces used many hose lines; heavy streams were operated into the department store from the street, and hand lines were taken into the adjoining stores to get at and control the stubborn fire in the attic and roof areas. Fire fighters were successful in holding the fires in the 3-story row of stores to the top floors and roofs, but water and smoke damage was heavy. The entire operation brought a heavy drain on the city's water supply system, and at the conclusion of the fire, it was reported, there remained only enough reserve for 40 minutes operation.

In the effort to force the glass block

(*Continued on page 216*)



NOVEL CRASH FIRE FIGHTING UNIT PROTECTS NEW YORK AIRPORT

Provides Fog, Fog-Foam, Foam, Carbon Dioxide and Water; "Nurse" Truck Augments Effectiveness

WHEN the Port of New York Authority assumed responsibility for operation of the New York City and Newark Airports, one of the problems was to provide adequate rescue forces and equipment to combat airplane crash fires. The trend toward larger planes, with more passengers, made that problem increasingly important and difficult.

War experience had demonstrated that a foam blanket made by a mixture of foam compound and water was an effective agent for fighting aircraft gasoline fires and for controlling them to effect rescue of personnel. Therefore it was considered essential that these airports have fire fighting equipment carrying large quantities of foam and be able to reach any section of the airport in a minimum of time.

The history of the use of and experiments with Army type trucks such as the Model 155 water fog; 150 low pressure CO_2 and Navy type FFN5 foam truck indicated that a new type of foam apparatus was required and that each airport should have one. In the course of training emergency crews on different equipment, various modifications of the specifications were made to meet the particular needs. The new truck is designed to be operated with minimum personnel and has the capacity to control and extinguish a relatively large gasoline fire in and around a crashed aircraft and to provide and maintain access to the aircraft for the rescue of entrapped personnel.

The new unit has a sturdy four-wheel drive chassis, carrying a 1,000 gal. water tank; a 90 gal. foam liquid tank; a gasoline engine driven pumping system; foam delivery devices, including the turret nozzles, ground sweep and three hand lines, and a high pressure carbon dioxide system of 800 pounds capacity.

In operation, the truck will be followed by a 'nurse' truck, consisting of a similar chassis, carrying 2,500 gals. water and 250 gals. of foam liquid. The 'nurse' truck will be provided with hose lines for coupling to the foam truck and through its own pumping system will supply additional foam compound and water properly proportioned. With the two trucks operated as a team, there will be available 3,500 gals. of water, which with the foam compound, will provide approximately 30,000 gals of foam blanket as the primary fire fighting agent.

The functional design of the foam truck was furnished by the Department of Operations, Port of N. Y. Authority. The manufacture was done by the Maxim Motor Co., Middleboro, Mass.

Major specifications of the new crash unit are as follows:

CHASSIS: heavy duty 4 x 4 truck, one front and one rear axle; positive drive to all 4 wheels. Truck is powered with a 240 H.P. engine; 6 speeds forward and 2 reverse; gear ratio will provide a road speed of 45 M.P.H. at governed engine speed with full load. Acceleration to speed of 45 M.P.H. can be obtained from rest in approximately 50 seconds.

TIRES: single 16.00 x 24, 16 ply, front and rear, inflated to 40 lbs. air pressure. Four-wheel drive and tire size were selected after tests with similar truck and loading had demonstrated its ability to travel successfully through loose sand present at N. Y. International Airport and over muddy roads and, when at rest in either type terrain, to pull free at a progressive rate. The truck is equipped with power steering; 4-wheel brakes; enclosed cab and auxiliary floodlights for on the scene illumination. Positive drive to all 4 wheels is provided by a differential system with patented automatic lock.

FOAM PUMPING SYSTEM: Tests indicated that the most satisfactory performance was obtained by a pressure of 300 P.S.I. and this choice was concurred in by the manufacturers of foam liquid.

The foam pumping system consists of 2 gasoline-engine-driven pumps connected in series with piping and valves, so arranged that either unit may be operated independently if required. Each unit has at 140 H.P. gasoline engine direct connected to a centrifugal pump with rated capacity of 600 G.P.M. at a normal operating pressure of 150 lbs. P.S.I. The 2 pumps when operated in series deliver 600 G.P.M. at an operating pressure of 300 P.S.I. at the discharge side of the second pump. Pumping units are located at rear of truck, one on each side parallel to the center line and are skid mounted and removable as a unit for repairs or replacement. Controls and instruments for pumping units are located in truck cab.

STORAGE TANKS: Water storage tank capacity 1,000 gals.; foam compound tank 90 gals. with an expansion chamber. Foam and water-tanks are of same height and proportional in cross-section so that in using solution of 9% foam compound and 91% water, similar head pressures are maintained. Filler hose couplings for each tank are provided at both sides of truck, and foam compound tank has an additional fill opening at top.

WATER AND FOAM COMPOUND PROPORTIONER: Careful proportioning of foam compound to water is essential if foam blanket of proper consistency is to be maintained. The proportioner selected consists of metered orifices installed in the water and foam compound feed lines on suction side of pumps. As installed, they provide for a solution of 9% foam compound and 91% water. Orifices are easily removable to permit installation of other orifices giving other proportions.

FOAM DISCHARGE DEVICES: Foam discharge devices include a front ground sweep, 2 turret nozzles, 3 hand lines with nozzles, and an undertruck nozzle.

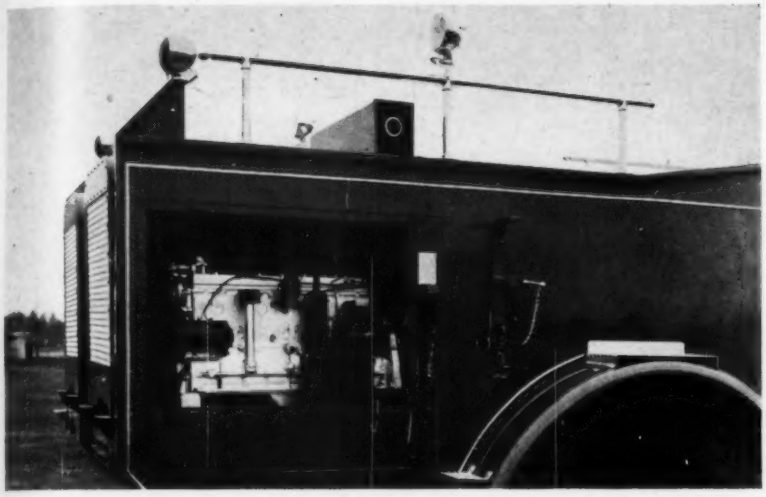
Ground sweep has 3 foam nozzles, located in fixed position under front bumper of truck, with sufficient ground clearance to prevent damage when truck is moving. Center nozzle has capacity of 40 G.P.M.; other 2 outer nozzles each have capacity of 25 G.P.M. at 300 P.S.I. operating pressure. Foam discharge is controlled by valve mechanically operated from cab or a ground position. The foam streams from nozzles merge to form a continuous fan-shaped pattern; projection approximately 40 ft.; spread approximately 20 ft. at full pressure.

Two foam discharge turrets are mounted on platform over truck cab, one at each side, at the front. Each turret has a nozzle, movable through a complete arc of 360 deg. and with total turret vertical movement of about 80 deg. Each is provided with weighted handles for movement and direction by one operator. Each turret is equipped with one Rockwood fog, foam and fog-foam nozzle, with removable diffuser head and foam shaper, and with capacity of 200 G.P.M. at 300 P.S.I. operating pressure. Control of foam discharge is by manually operated valve at nozzle. Turret nozzle has effective projection of 75 ft. of fog-foam with screen adapter and approximately 125 ft. of straight foam with foam shaper in place.

In normal operation, the procedure is to use fog-foam from the nozzles because greater water content of fog-foam provides greater cooling effect.

There are three foam hand lines, mounted on electrically rewinding reels

New Crash Truck Recently Delivered to Port of New York Authority



Rear View of Port of New York Authority Crash Truck

located at the sides of truck. Each line has 100 ft. of rubber fire hose, equipped with combination fog and foam nozzle, with capacity of 30 G.P.M. at 300 P.S.I. operating pressure.

A foam nozzle with capacity of 15 G.P.M. at 300 P.S.I. is located underneath the truck to protect truck itself from a creeping ground fire caused by gasoline spill. This can be operated from cab or the ground.

CARBON DIOXIDE SYSTEM: An auxiliary medium of extinguishment is provided to supplement the foam. This consists of a carbon dioxide system complete with tanks, manifold and discharge hose. The CO_2 is contained in eight 100 lb. high pressure cylinders, in a cradle at the rear of the truck cab. Cylinders are connected to a discharge manifold in groups of 4 and are easily removable for refilling. A discharge nozzle and 100 ft. of discharge hose mounted on an electrically rewinding reel is provided at the side of truck.

RADIO: Telephone radio transmitting and receiving equipment for communicating with the airport control tower is installed in cab of truck. Both transmitter and receiver operate on frequency of 121.9 kc. and have ample power to maintain contact within radius of 5 miles.

AUXILIARY EQUIPMENT: The truck is equipped with the necessary forcible entry and rescue tools, including 1-16 ft. and 1-24-ft. ext. ladders (metal) and portable hand extinguishers.

Unexplained Asphalt Blast

In an unexplained explosion, which wrecked a steel asphalt-carrying tank trailer at the Clyde R. Royals, Inc., plant in Hampton, Va., one man was killed instantly, another was seriously injured, and still another man died indirectly as the result of the accident, when he was struck by an automobile.

Earl Louchard, 31, and Carter Morgan, 26, were unloading asphalt from the trailer at about 9:15 P.M., when a sudden explosion occurred, blasting the tanker apart with a concussion that was felt over a mile square area.

Rescuers found Louchard dead and Morgan stunned but conscious and badly injured. The latter was rushed to Dixie hospital, where he is expected to recover. Morgan was an amputee, losing a leg while serving with the U. S. Army during World War II.

The concussion brought a flood of telephone inquiries to Fire, Police and newspaper offices. The Hampton and Phoebus Fire Departments responded to the scene but were not needed, as no fire ensued after the blast.

The other victim was identified as Oillie Brown, 52, negro, who was struck by an automobile at a railroad crossing while he was en route to the scene. Occupants of the Phoebus Fire Department, returning to their quarters, found Brown lying unconscious beside the road and rushed him to the veterans' hospital from which he had been discharged not long before.

Investigation into the cause of the explosion brought forth conflicting reports. Mr. Royals, operator of the company, who was first to reach the scene of the accident after the blast, could not ascribe any reason for the blast and denied reports that a blow torch was being used. Nor could a police sergeant, who was one of the first to arrive, determine the cause of the explosion. However, B. L. Renn, Engineer of the Hampton Fire Department, who was at the scene, said he believed the men were using a portable heating unit from a second truck to melt the asphalt for unloading and that Louchard was underneath the truck applying heat from the portable unit when it let go. Renn said the truck was not equipped with a heating unit and that Louchard was heating tubes beneath the vehicle. He added that he believed there were two grades of asphalt in the vehicle and that the heavier grade settled to the bottom of the truck and plugged up the vents, keeping gas and fumes from escaping.

The shattering blast destroyed the trailer and attracted so many people that police and firemen had difficulty clearing a path to get in and out of the plant yard. Traffic on roads leading to the accident were jammed for more than two hours.

Standards for Heating Equipment

A new pamphlet outlining safety standards for the installation of heat producing appliances, air conditioning systems, and similar equipment has been issued by the National Board of Fire Underwriters.

The pamphlets, which sets standards for all types of heating appliances and equipment now in common use, is titled, "Building Code Standards of the National Board of Fire Underwriters for the Installation of Heat Producing Appliances, Heating, Ventilating, Air Conditioning, Blower, and Exhaust Systems."

Much of the information in this pamphlet was included in the 1943 edition of the NBFU Recommended Building Code, but is now available in a separate publication for the first time.

All of the material was reviewed by a committee of experts and brought up to date. The provisions in this new Standard can be used by any municipality regardless of whether or not the community has adopted the National Building Code.

Copies of the pamphlet are available from the National Board of Fire Underwriters, 85 John Street, New York 7.

Fire Out — No Dishes

Drew Alsop, farmer of near Olympia, Washington, quickly doused the fire which started in his kitchen but got in bad with his wife. The dishpan full of water he tossed on the blaze contained her best set of china.

RALPH E. OGDEN

Two Died as Result of This Unexplained Blast in Asphalt Carrier

Men apparently trying to heat asphalt in steel tank-trailer were casualties when explosion occurred.

January Fire Losses Decline

Fire destruction in the United States totalled $57,026,000 during January, a decline of 8.1 per cent from losses of $63,010,000 reported in January 1948, according to estimates announced by W. E. Mallalieu, general manager of the National Board of Fire Underwriters.

Unseasonable mild weather in the densely populated Eastern seaboard and Southern states, with less need for forced operation of stoves and furnaces, may have been responsible for the decline of fire losses in January.

The January losses were 16.5 per cent less than December 1948 losses of $69,397,000.

Losses for the 12 months ending January 31, 1949 totalled $706,030,000, an increase of 1 per cent over losses of $698,465,000 estimated for the 12-month period ending January 31, 1948.

In spite of the decrease in January, needless fires are destroying irreplaceable property at near record levels, Mr. Mallalieu warned. The 12-month figure is only slightly lower than the $711,114,000 fire loss for the calendar year 1948, which was the greatest in U. S. history.

These reported fire losses under fire insurance policies include an allowance for uninsured and unreported losses.

Walkie-Talkies Big Aid in New Orleans Drill

The New Orleans, La., Fire Department, directed by Howard L. Dey, Chief Engineer, conducted an unusual and spectacular drill practice on January 9, 1949, in which the Hibernia Bank Building, with its Tower rising 325 feet above street level, played a big supporting part.

The drill is a part of the department's aerial training program, and was conducted, in the words of Chief Dey, "as a common sense way of teaching the firemen how to take care of themselves and at the same time get the best results from pumps and hose under adverse conditions."

The evolution consisted of stretching (hoisting) 400 feet of 2½ inch regulation fire hose up a stairwell inside the skyscraper, attaching a 2½ inch fog nozzle and supplying water to this single perpendicular line through two single 150 foot lengths of 2½ inch line, siamesed into it from the pumper of Engine 10, located 325 feet below.

Chief Howard L. Dey Giving Preliminary Instructions to Training Instructor Captain William Arnold and Assistant Training Instructor Captain Edward Thomas Regarding the Training School Demonstration Atop the Hibernia Bank Observation Tower, 325 Feet Above Street

The pump operated against a head of approximately 141 pounds, according to Chief Dey. Nozzle pressure at the 1-inch tip (solid stream) was 60 PSI. The pump pressure at the engine was 275 PSI.

Drill operations were directed by Chief Dey, with Training Instructor Captain William Arnold and Assistant Training Instructor Captain Howard Thomas on the street level, in touch with Deputy Chief Patrick T. Burke and crew of Engine 10 and others on the Observation Platform of the building, by means of Signal Corps type walkie-talkie radio.

According to Chief Dey, the practice operation conducted by the Training Division established these facts:

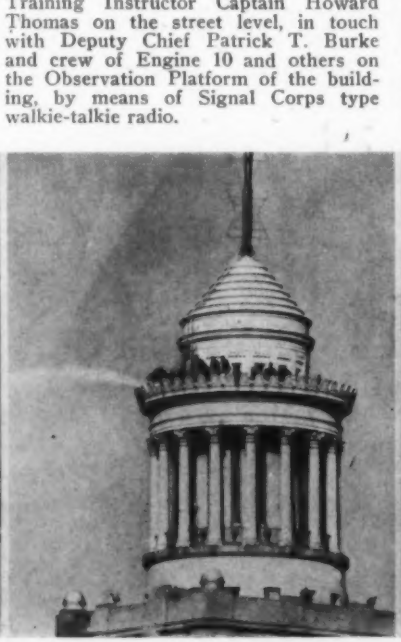
1) Excessive pressures are not necessary to raise water to great heights and at the same time have a satisfactory fire stream.

2) Hose lines up stairwells when properly protected with hose straps, will prevent butts from blowing out.

3) Walkie-talkies are the best means of communication between men working aloft and pump operators at the street level.

4) Couplings when spanner tightened, with good gaskets, will not leak. In this instance there was no leakage inside the bank stairwell; however, men equipped with salvage covers, were properly spaced to guard against any unforeseen happening, such as burst lines.

Drill Practice by the New Orleans Fire Department on Hibernia Tower, New Orleans, La. Nozzle Pressure on 1-Inch Tip, 325 Feet Above Street, Is 60 P.S.I.



New Orleans Firemen at Drill Practice on January 9, 1949, Atop Observation Tower, Hibernia Bank Building, New Orleans

Deputy Chief Patrick T. Burke Directs, Via Walkie-Talkie from 325-Foot Tower of the Hibernia Bank Building, Fire Fighters at Street Level

Chicago Municipal Airport Gets Crash Truck

On December 22nd, the City of Chicago accepted delivery of a new aircrash fire truck at its municipal airport. The extinguishing agents used in the apparatus are 4,500 pounds of low pressure carbon dioxide and 230 gallons of mechanical foam solution. The truck itself is a modernization of the U. S. Army's Class 150 and U. S. Navy's Model 9506, both of which were used in many theatres of war and are still in active service.

Airport protection and particularly aircraft crash fires demand quick extinguishment, which in turn demands quick application of the extinguishing agents upon rapid approach to the scene of the fire. As carbon dioxide extinguishes fire by displacing the oxygen in the area, the faster this is accomplished, the faster the flames are extinguished and rescue can be made. This truck, with its "boom" nozzle, an oscillating ground sweep nozzle, and two hand lines, can if necessary, discharge 3,200 pounds of low pressure carbon dioxide in one minute. This cloud blankets a plane and extinguishment is accomplished in seconds. Mechanical foam solution is employed to cover over areas of flammables that are subject to reflashing.

Although this unit weighs approximately 32,000 pounds with full load, it has cruising speed of 60 miles per hour and can negotiate the first mile in 90 seconds or less. It is 25 feet long and approximately 9 feet high.

Mr. John H. Bell, President of Cardox Corporation, of Chicago, which built the truck, officially turned it over to the Hon. Martin Kennelly, Mayor of Chicago.

A feature of the truck is the new type front bumper mounted boom. This is ten feet long, has a working elevation of 18 feet, and it can be quickly maneuvered into any desired position with accurate control of the direction of discharge of carbon dioxide. The capacity of the boom nozzle is 1,250 pounds of carbon dioxide per minute. This nozzle has an effective discharge range of up to 50 feet. The carbon dioxide, cooled by expansion upon release to 110 degrees below zero, forms a cooling and smothering envelope of inert gas and carbon dioxide "snow" (small particles of solid carbon dioxide) to knock down heat and flame.

A new type ground-sweep nozzle directs 750 pounds of carbon dioxide per minute at the base of the flames. This nozzle oscillates through a wide arc and can cover a large area. It is powered by an air-type motor, driven by carbon dioxide vapor, and is put into action as the truck approaches the fire. It cuts the flames off from their fuel and prevents a break-through of fire beneath the truck. This ground-sweep nozzle permits the truck to be driven almost into the fire for close range fire fighting. It is assisted by two foam makers, mounted on the front bumper, that discharge a total of 60 gallons of foam solution per minute ahead of the truck in two intersecting arcs. All the foam discharge equipment, while in use, is under pressure supplied by the carbon dioxide itself. Exposed gasoline or oil is blanketed against reflash and at the same time the foam helps to cool down the fire zone.

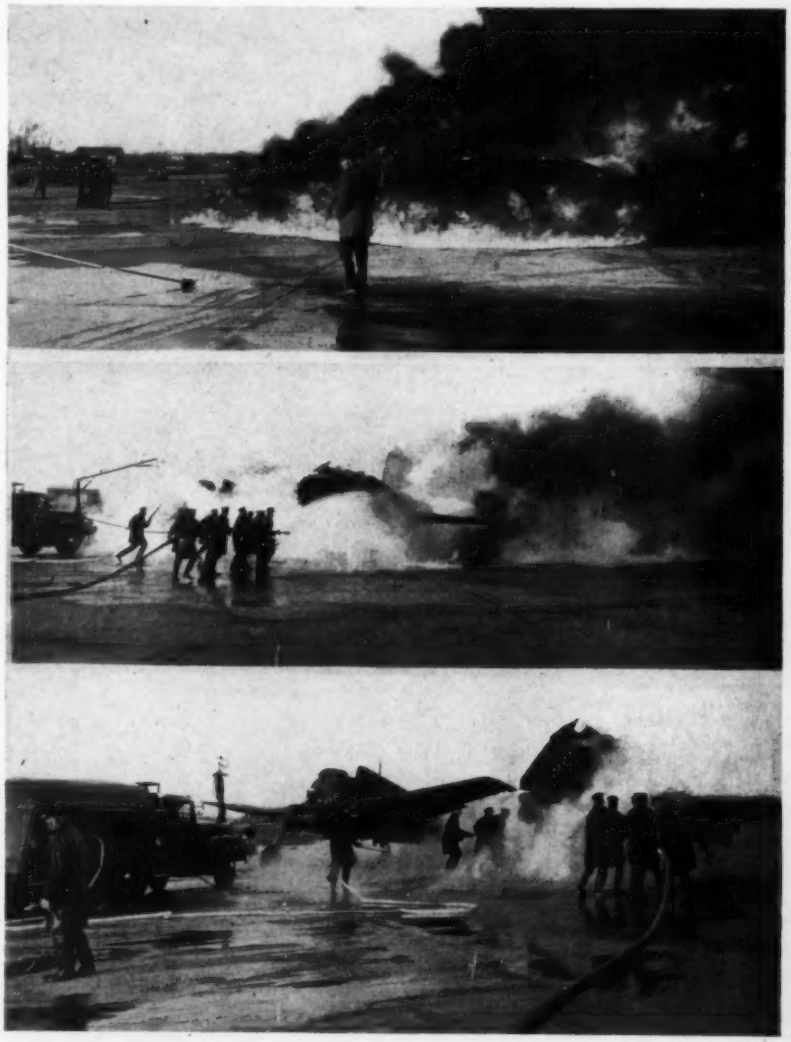
With the boom and ground-sweep carbon dioxide nozzles and the fixed foam makers in operation, the men handling the hand lines go into action. Each of the 1¼ inch by 100 foot carbon dioxide lines has a discharge capacity of 600 pounds per minute. The two operators attack the fire around the edges and in those places not directly accessible to the other nozzles. They also assist in clearing an entrance way into the plane for rescue. Two other operators use the 100 foot hand foam lines, each of which releases approximately 45 gallons of foam solution per minute, to blanket gasoline and oil, to cool hot metal and to extinguish any glowing embers that may remain after the rest of the fire has been put out.

Still another nozzle can be brought into play if needed. This is a bayonet type, used to pierce plane compartments, engine nacelles or other enclosed spaces and flood them with carbon dioxide to stop fire or render the enclosed space inert and so prevent explosion.

All discharge equipment except the handlines is controlled from within the cab. A single control mechanism, entirely new to this type of use, activates the boom up, down or sideways, as well as the movement of the boom nozzle itself "in" and "out" in a vertical plane. Control valves on truck's instrument panel release carbon dioxide and foam from the ground-sweep apparatus. A six man crew is required for full effectiveness—a driver, an operator for the discharge controls within the cab and one for each of the four hose lines, although, in an emergency, fewer men may be used.

SUSANVILLE, LASSEN CO., CALIF.—A call system has been inaugurated by the Susanville Fire Department whereby its units can be dispatched to aid in fighting fire in local lumber mills. The details were worked out by Asst. Fire Chief Bob Davis.

VICTOR BARTLEY



Top: Fire in Two Old Planes Before Attacked by Cardox Truck and Water Truck. Center: Fire on Two Wrecked Planes, Where the Cardox Unit Extinguished the Blaze on One While Firemen Attempted the Second Plane with Fox Nozzles. Bottom: After Extinguishment of Plane No. 1 and Finishing Up of Fire on Plane No. 2

Thirty-Two New Pumpers for Chicago

The last two of the 32 pumpers ordered by the Chicago, Ill., Fire Department last fall from the Mack Mfg. Corp., of Long Island City, N. Y., were expected to be delivered in March. The first engine was delivered December 1. Subsequent engines arrived in groups of four.

Mayor Martin J. Kennelly, Fire Commissioner Michael J. Corrigan and Chief Fire Marshal Anthony J. Mullaney formally accepted the first engine during brief ceremonies in front of the Chicago City Hall. At that time a 26-year-old pumper was brought to the ceremony for comparison with the new 1000-gallon model.

Co-incidental with delivery of the new pumpers came an announcement by Fire Marshal Mullaney that the new equipment would be the first tested under the new standard acceptance tests established by the National Board of Fire Underwriters and the International Association of Fire Chiefs.

The new tests replace older Chicago Fire Department tests which were less rigid.

Under the new setup, an engine is required to pump 1000 gallons a minute at 150 pounds pressure for 4 hours, 700 gallons at 200 pounds pressure for 2 hours and 500 gallons at 250 pounds pressure for 2 hours.

Chicago pumpers, under the old specifications, were required to deliver 1000 gallons at 120 pounds pressure for 4 hours, 500 gallons at 200 pounds pressure for 2 hours, and one-third capacity at 250 pounds pressure for 2 hours.

All tests are made on a lift of 10 feet from surface water, such as the Chicago River, to the center of the intake port on the engine.

Although the new units have a fire pump guaranteed to discharge 1000 gallons at "capacity," Chief Mullaney believes the new engines probably will deliver from loop or industrial area hydrants, which maintain good pressure, 1,750 gallons a minute.

The new pumpers have enclosed cabs accommodating three men. The engines are 28 feet long—three feet shorter than the other fairly new 1000 gallon pumpers Chicago now has in service.

The engines carry a guarantee of 213 horsepower and have a 707 cubic inch displacement. They have four speed forward transmission and four-wheel hydraulic and vacuum brakes. Wheelbase is 172 inches and the overall width is eight feet.

Equipment includes one 14-foot roof ladder with folding hooks and one 24-foot solid side extension ladder. Two fire department axes, a steel crowbar, one 10-foot pikepole and two electric hand lanterns also are included. Hand extinguishers include one 2½ gallon foam type and one 2½ gallon soda-acid type. Two playpipe cones, one 2½ inch double female connection, one 2½-inch double male connection, one five inch steamer connection and one 5 foot by 2½ foot hydrant connection completes miscellaneous equipment on the new rigs.

Tires are 9.00-20 and the vehicles weigh 14,200 pounds apiece. They have a turning radius of 31 feet to the left and 28 feet to the right.

The new apparatus was financed from a $1,500,000 bond issue which was approved by Chicago citizens at a referendum in the November 4, 1947, election (see FIRE ENGINEERING, May, 1948, page 296).

Fire Commissioner Corrigan hopes to acquire a total of 52 pieces of modern apparatus including 12 aerial ladders and two fireboats, as a result of the bond issue.

After a lengthy squabble, the Chicago City Council on October 16, approved a contract which awarded the Christy Corporation of Sturgeon Bay, Wisc., a $512,000 contract for the two fireboats.

PAUL C. DITZEL

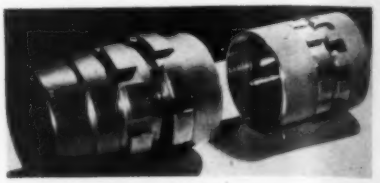
One of Chicago's Thirty-Two New Pumpers

Navy Develops New Coupling

The Navy has developed a light weight, non-corrosive fire hose coupling for use aboard ships, which has a number of unique features. It is manufactured from a copper-nickle alloy having excellent strength and non-corrosive properties, and the material may be heat treated to improve the physical characteristics if additional hardness or strength is desired.

The new coupling is said to possess these advantages over the present Navy coupling:

1. Approximately 50% lighter weight, with considerably increased strength and toughness.
2. Increased life and wearing qualities of coupling.
3. Complete resistance against salt water corrosion.
4. Interchangeable with present Navy standard coupling in all features including hose thread and use of same spanner wrenches.
5. Increased resistance against impact or deformation by dropping on decks or pavement.
6. Stowage problem is reduced due to smaller size and this enables easier packing on hose racks.
7. Larger internal diameter allows a greater rate of flow with a reduced energy loss through the coupling.
8. Knurled outside finish enables a quick, easy non-slip grip when wet.



Left: Navy Standard 2½-Inch Coupling; Right, New Navy Experimental 2½-Inch Coupling

9. Undercut groove lug prevents fouling on hatchways and obstructions.

The disadvantages of the new coupling compared with the Navy standard couplings are reported to be increased cost of manufacture and material.

The characteristics of the new coupling are given as follows:

	Experimental Navy Special	Navy Standard
Length	4½"	5⅞"
Diameter O.D. (Maximum)	3⅛"	4⅛"
Diameter I.D.	2 11/16"	2½"
Weight	3 lbs. 4 oz.	7 lbs. 2 oz.
Hose Thread	National Standard	National Standard
Material	Copper-Nickel Alloy	Navy Brass

It is understood that experimental couplings have been undergoing tests in the Yard Fire Division, Norfolk Naval Shipyard, since last September and the advantages of the new coupling have made it popular with Navy personnel. This development is said to be part of the fire fighting development program underway at the Shipyard. Details of this development were made available through the courtesy of the Norfolk Naval Shipyard Fire Division, Norfolk Naval Shipyard, Portsmouth, Va.

Radio Urged for All Philadelphia Apparatus

Every piece of the Philadelphia Fire Bureau's apparatus should be equipped with two-way radio, declared Albert H. Redles, president of the Box 1776 Association of that city, speaking at the association's annual banquet in the Quaker City. Responsible city officials, he suggested, should start planning now to so equip the department.

"The Fire Bureau should have its own transmitting equipment and its own allotted frequency," Redles said. "To put the police and fire departments in one radio broadcasting room is taking entirely too much of the facilities of the police who cannot be expected to function simultaneously when major catastrophies strike." Redles pointed out that it has only been quite recently that the cars of battalion chiefs have been equipped with radio.

The Box 1776 Association, organization of fire buffs, most of whom are business and professional men, has headlined efforts of Philadelphians to bring about needed improvements in the city's Fire Bureau.

The association at its annual meeting also endorsed the proposed formation of a national council of fire buffs.

The WATCH DESK

Overhauling the firemanic news of the day

by ROI B. WOOLLEY

Police Go Crazy as Fire Fighters

Firemen have their troubles fighting fire, but sometimes things go haywire with their brothers of the Police force in connection with fire service, as attested by two items from widely different areas, sent by Faithful Contribs, Irving Johnson and Jack Kearns.

In Monroe, Wis., an excited voice came over the police telephone exchange.—which handles fire calls. "Send the fire department right away, we've got a stove pipe fire out here."

At the police station, Herb Bolliger threw a fire bell switch to alert the vamps. The switch didn't work!

Rushing to the fire house, Bolliger yanked the bell cord—which would have also called the vols. The cord broke.

Turning to run back to the police station Bolliger tripped over a coil of rope, further ruffling his temper—and his raiment. Scrambling to his feet he frantically threw a siren switch. This worked, and the welkin rang!

Just then the phone jangled. "Cancel that call," a voice said, "we've got the fire under control.

The other item concerns versatile "Duke" Dufuer, regular police officer of Carmel, Calif., who does a bit of "doubling in brass."

Dufuer was a mighty confused man when a general alarm fire struck nearby Monterey's famed Cannery Row. Off duty at the time, Dufuer did a "100-yard dash" to the fire house, since he is a volunteer fireman as well as a police officer.

As the equipment was ready to roll he was called back by an alert for extra policemen.

Dufuer started for Monterey again, this time in a police car, but again he got the detour sign. This directed him to hustle back and drive the Carmel ambulance—another of his duties.

Deponent saith that Dufuer finally got to the fire—where he directed traffic—still another of his jobs!

The moral, if one is needed, is—there's a limit to "doubling in brass"—when everything happens at once!

* * *

The Month's Orchids to Baker McCann

Quick thinking and action of Lowell McCann, a baker of Warren, Pa., is said to have probably saved that city of 14,891 inhabitants from disaster.

At 2:00 A.M. one morning Baker McCann noticed the gas flames in his bread ovens had flickered out. Ten minutes later gas again hissed through the supply pipes, unlighted.

McCann reasoned that many unattended gas appliances in the slumbering city might be pouring unburnt gas into homes and apartments, so he called Fire Chief Charles Albaugh.

Fire trucks, police cars and ambulances raced through the darkened streets, sirens screaming. A sound truck blared "Check your gas! Check your gas!"

Chief Albaugh said the cacophony which woke the population saved many lives, as his men found about 300 gas-filled homes and he personally awakened "at least fifty" groggy citizens. No one, luckily, was overcome. The light and heat company serving the area laid the interruption to an air pocket in the line.

* * *

Tales of Television

The Town of Billerica, Mass., has an alert fire department, which includes call men and volunteers, under Fire Chief Harry F. Waite. The fire station possesses a television set.

On Jan. 13, 1949, a call was received at the station from one of the call men to turn the television receiver to station WBZ-TV. This was done and when firemen tuned in, they found WBZ-TV was broadcasting direct from the scene of the three-alarm fire in the First Baptist Church in Philadelphia.

According to Captain Paul H. Roper, of the Billerica station, the telecast was well done; the observers witnessed "a lot of good ladder work and very good fire fighting direction." Says Captain Roper, "I don't know how long they were on the air, but we had them on for a good hour and a half."

Seems like there ought to be some sort of conclusions to be drawn from this epochal event.

From Irvington (N. J.) via Frank J. Corcoran, comes another comment anent television. It is disclosed that the chief and commissioner has given permission to Irvington firemen to install a television set in each firehouse. Sets are paid for by the Firemen's Benevolent Association and, in turn, each man pays 50 cents a payday or $1.00 a month back to the association until it is paid up. "We thing this is a wonderful pastime," says Brother Corcoran. He adds that publicity given this installation will, he hopes, influence chiefs in communities that have thus far banned television receivers in firehouses.

* * *

Hot Off the Tape

Mrs. Mannie Yellen of Toronto, Ont., Can., grabbed her three unconscious children aged three, seven and twelve, by the hair and dragged them out of her burning house. Firemen prevented her from returning when she became confused and forgot she had them all out. . . . Rochester, N. Y. firemen answered an alarm from radio station WIKK to find the studio filled with smoke. There was no fire, but firemen were forced to don gas masks to clear the place of choking smoke given off by burning of shavings from transcription disks. . . . A Bible salesman told police of Portsmouth, Va., in February, he had burned down Baptist church in Alabama 25 years ago. Records showed that while he was serving as pastor of church in Girard, Ala., the edifice was destroyed by fire. Alabama authorities decided to forget the whole thing. . . . Two Indians burned to death when fire destroyed a one-story frame house on the St. Regis Indian Reservation about three miles east of Hogansburg, N. Y. . . . The smouldering body of a mother of two children was found sprawled on a little-used snowy road near Lexington, Mass. Beside the body was empty cleaning liquid can. . . . In Union City, N. J. the badly beaten and burned body of another woman was found in a second-floor room of a rooming house; Murder . . . Clarence Libby of Berwick, Me., was burned about the face and hands as he twice rescued one of his 10 children from their flaming farm home. He had to repeat the rescue when the saved child, like a horse, ran back into the burning house.

* * *

Spite Fence Slows Firemen in $50,000 Fire

On January 24, 1949, a fire of undetermined origin swept a wing of a newly completed apartment house in Great Neck Plaza, Nassau County, L. I. The blaze originated in the basement of the untenanted structure in building and was detected by an electrician checking wires, who notified police, who in turn alerted the nearby Vigilant Fire Company.

The volunteers responded quickly, using a hydrant directly in front of the 3-story garden type apartment. Then they searched for a second hydrant, as help rolled in. They found it in the rear of the apartment but on the other side of a ten or twelve foot anchor wire fence erected by the adjacent village of Great Neck Estates to prevent apartment dwellers from using Estate streets.

The Alert Company and companies from Manhasset-Lakeville arrived and a ladder was set against the fence and a second line run down the Estates side. Connections were made at the hydrant and the line carried over the fence to the burning building. By this time, however the fire was working its way through the walls of the structure. Asbestos fire walls, which subdivide the building into eight sections, confined the blaze to one wing. Some damage was done as firemen were forced to cut floors and break into walls to get at the fire in concealed spaces.

Observed one officer: folks who erect spite fences seem to forget that they're taking their spite out on firemen as well as the objects of their ire—with possible increase in the fire hazard to themselves.

JAMES H. FAIRBROTHER

* * *

Sleet Storm Delays Alarm—Loss $500,000

There's a lesson in the story of the burning of the plywood veneer plant in Fair Haven, Vt., on Feb. 6, 1949. It was not only the third big fire in the town since the first of the year, but it wiped out jobs for 80 persons employed on three shifts, and left the town's 20 volunteers in a dither.

It is disclosed that Mrs. Mary Kennedy, a town telephone operator, had to summon each of the town's vamps individually by phone to the fire, because the public fire alarm whistle was thrown out of commission by a sleet storm several months ago. Ironically, since the storm the veneer plant's steam whistle had been used as a substitute fire alarm, but plant officials said the plant watchman was unable to get to it because of the flames.

Several weeks before the costly veneer plant fire, separate blazes destroyed a large business block in the center of town and a convalescent home.

Seems like Fair Haven is a fair haven—for fire!

News of the Manufacturers

New Research Laboratory for MSA

A modern research laboratory, the largest in the world devoted exclusively to the development of safety equipment for mines, industries, and public service organizations, will be built at Pittsburgh, by the Mine Safety Appliances Company.

George H. Deike, president of the company, announced that construction of the four-story building will start immediately with completion scheduled for September, 1949.

Facilities of the laboratory will be made available to all industry for the investigation of safety equipment problems affecting health and property, Mr. Deike explained.

Research and development efforts will be concentrated on instruments, equipment and other devices to safeguard the health and welfare of workers in all types of industry and, in some instances, the public generally.

Due to the increasing number of changes in industrial processes and operations, new hazards must be overcome by the development of different types of equipment, Mr. Deike pointed out. This, plus a continuing research program to improve existing equipment, will be the primary objective of the new laboratory.

The building, to be located one block from the company's Pittsburgh plant, will be dedicated as a memorial to the late John T. Ryan who, with Mr. Dieke, founded Mine Safety Appliances Company 35 years ago. It will known as the John T. Ryan Memorial Laboratory.

Many types of instruments and equipment to conduct research in various branches of science, basically chemistry, electricity and physics, are to be installed in the laboratory.

Specially designed dummies are to be employed in testing safety belts. A series of model heads—some of which stimulate breathing—will aid in improving the efficiency of face masks and respirators.

Activities of the Physical Laboratory include development of instruments to detect flammable, toxic and noxious gases and dusts in many different fields.

In the Chemical Section, researchers will continue to develop chemicals to remove toxic and noxious fumes and gases from the atmosphere in mines and industrial platns.

The Rubber and Plastics laboratory will study materials for manufacturing face masks, safety hats and helmets, safety clothing and other types of equipment.

Dr. William P. Yant, Director of Research and Development for the company since 1936, will have charge of the research laboratory.

The laboratory building was designed by Prack & Prack, Pittsburgh, architectural engineers. The four-story structure to be built of reinforced concrete with red brick facing, will have about 24,000 square feet of floor area. It will be at Penn and Braddock Avenues.

Architecturally, the design of the structure is simple but highly functional for the type of work contemplated there. The main entrance will be of aluminum and glass 15 feet square. The vestibule and reception room are to be floored with terrazzo and trimmed with marble. From the vestibule at a lower level, the reception room is visible through a 7-by-12-foot polished plate glass screen.

M. J. O'Brien Joins Ward LaFrance

The Ward LaFrance Truck Corporation of Elmira, N. Y., has announced the appointment of M. J. O'Brien as sales representative in the northern half of the State of New Jersey.

Mr. O'Brien was formerly with the American-La-France-Foamite Corporation and prior to this date was Chief of the Fire Department of Kingston, Pa. During the war he was senior officer in charge of fire fighting at the Mechanicsburg Naval Supply Depot, west of Harrisburg, Pa.

F. L. Boyd Again President of National Foam

Hart H. Fleming, National Foam System, Inc., of Philadelphia, Pa., has resigned as President and Director of the Company. Mr. Fleming will act in a consulting capacity in sales and research. Fisher L. Boyd, who has acted as President and Treasurer since its inception, has resumed his former duties.

Myers Announces New Fire Pump

A complete line of reciprocating high pressure fog fire pumps has just been announced by The F. E. Myers & Bro. Co., Ashland, Ohio. They range in size from 15 to 60 GPM and develop pressures up to 800 lbs.

These units are designed with latest engineering features; all working parts are precision made from forged or high carbon steel and operate in oil with positive lubrication to all parts. Built-in pressure control valves assure pressure adjustment and operation.

The manufacturer states that, "these pumps have been time-tested and are outstanding for their efficiency as well as dependability which is essential in fire fighting equipment."

An instructive catalogue has been issued, describing these pumps, and may be secured from the company. The publication is entitled, "Myers High Pressure Fire Pumps Catalog No. F. P. 48."

Doolittle Introduces Portable FM Radiotelephone

Doolittle Radio Inc., Chicago, has announced a new "littlefone" portable FM radiotelephone for the 152-162 mc band which has a number of features that are of interest to the fire service.

It is claimed for the new equipment that it is the only portable radiophone weighing under 10 lbs. available for fire department frequencies in the 152-162 mc band.

The "littlefone," as it is designated, is a conventionally-built crystal - controlled FM transmitter and ultra sensitive receiver, equivalent in every way to standard FM emergency radio communication equipment except smaller in size. It is available with wet batteries and vibrator or with dry batteries, for power supply. A single switch provides "off-on" and volume control. With wet batteries it gives 8 hours continuous service between charges, which can be made from car battery or 115 volts A.C. Dry cell batteries give approximately 25 hours normal transmitting and receiving. "Littlefone" is said to be the only unit of this type which can be operated from either wet or dry cells.

The new unit affords 2 to 5 mile coverage between "littlefones" or much greater coverage when used with fixed station or mobile equipment. Handset is Western Electric push-to-talk type complete with Koiled Kord. Earphone, lip or throat mike or other alternate equipment, is available to meet special needs. The throat mike is furnished when the unit is desired to be used with gas mask equipment.

The short antenna (approx. 17") is less likely to come in contact with obstructions and removable from carrying case. Other types of antenna are available for special application. Shoulder or back pack carrying facilities are provided in accessory equipment as desired.

(*Continued on page* 213)

Architect's Sketch of the New Research Laboratory to Be Built in Pittsburgh by Mine Safety Appliances Company

"ONE SOCK IN THE SOLAR PLEXUS... AND IT WAS OUT IN THE FIRST ROUND!"

says **CHIEF TRUSLOWE**
of Englewood, N. J.

"Smoke and flame were spouting from the basement of a 5-story apartment house when we arrived. Tenants were huddled on fire escapes as the flames shot up the dumbwaiters to the roof, mushrooming out into kitchens on every floor.

"Every second was vital. We hit the basement blaze with two 2½" lines, knocked it out in under 3 minutes. We put a 50-foot length of 2½" on the standpipe riser on each floor and only a dash of water was needed to take care of each burning kitchen. Because we worked fast with dependable, adequate-size hose, the water damage was negligible, and the building remained tenantable."

Let's swap Fire Fighting Stories like this one!... What's your favorite? Send it along to us today!

FOR GREATER PROTECTION TO LIFE AND PROPERTY

Hundreds of fire chiefs and thousands of firemen know the dependability of Eureka Fire Hose—dependability that results from these features:

- ★ **The Unique Smooth Interior Filler Ply, for maximum nozzle pressure.**
- ★ **Balanced Weave and Controlled Curing, which eliminates excessive writhing and warping.**
- ★ **Formula "X" for positive protection against mildew.**
- ★ **Bomb-Tested Lining, to insure long, dependable life.**

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Kindly mention FIRE ENGINEERING *when writing advertisers*

Short Cuts and Gadgets

WHO'S WHO—AND WHERE

The business of keeping track of personnel in the average municipal paid department has given more than one fire official gray hairs, particularly since the three-platoon system came into being.

Different methods are developed by different departments to help keep track of personnel. Some of these are complicated and only add to the headaches; others reduce the problem to a simple system.

One of the latter is in the Columbus, Ohio, Fire Department, Walter G. Strickfadden, Chief. This procedure takes the form of a personnel directory, or roster, which rates a description for our readers.

Writes Chief Strickfadden: "When the three platoon system became effective in the Columbus Fire Department it was difficult to know what unit was on duty or where certain men were assigned. Various methods were tried and finally our Deputy Chief, Samuel H. Zaayer, designed a board which solves this problem. The board is known as a "Roster Board" and was constructed as follows—

"Names are printed on strips of cardboard ½ x 3 inches (cut from 3 x 5 inch file cards). These cards are coated with clear lacquer, and several coats applied before cutting. Colors vary: red for officers, white for members, yellow for men on probation and green for vacancies on companies. They are mounted on ½ inch or heavier plywood board, stained for appearance.

"Strips of aluminum linoleum binding .045 inches thick, spaced three inches apart vertically on the board, hold the ends of the cards, and brad escutcheon pins No. 18, ½-inch, are used beneath each card strip.

"The units are divided by the aluminum binding strips placed 3 inches apart and the third and first unit is divided by painting the aluminum binding red between them.

"Small ½ x ¾ inch pieces of the file card board are used for vacation (Vac), laying off (L. O.), light duty (L. D.), suspended (Susp.) and certified-off-duty (C. O. D.). These are placed over the end of name strips when such occurs. Rubber cement is used to place these small pieces on the right hand end of the cards when such action becomes necessary, and when the man has returned to duty the small piece of card can be removed and the rubber cement rubbed from the name strip which has been lacquered and is therefore not damaged.

"The complete Roster Board is 36 x 70 inches in size, and covers 19 houses now in service plus 6 houses contemplated. The picture of the Board, while not too clear, will give a general idea."

* * *

TO SPOT FIRE ALARM BOX

There are a number of methods of identifying fire alarm boxes on poles and buildings by means of lights, painted bands on poles, and so on.

Not all identifying methods work under all conditions. But that is no reason for not trying to make it as easy as possible for a person to locate an alarm box in time of need—particularly at night.

We came across a procedure followed by the Ashville, N. C., Fire Department, of marking the box itself so it can be more quickly identified from the sides, and after dark.

In Ashville, each side of a box is equipped with large reflector-type sign with the word "FIRE" spelled out perpendicularly.

A substance which also reflects light and can be seen some distance away has been used on the handle of the front of the box (the latest type pull-down handle box).

Fire alarm boxes are usually located near street corner or other lights. The reflector signs catch the rays of light and 'spotlights' the word "FIRE" thus more quickly indentifying the box from either side. This idea of course, need not eliminate the painting of the pole on which the box is mounted.

* * *

The Old Timer Says—

Lookin' over the records, I find a lot of accidents to fire apparatus travelin' to and from fires came about when company units were usin' streets with which they weren't familiar, like when on a multiple alarm call, or fillin' in for some other outfit that was out of service. Maybe it's a good idea to hold a few "hot stove" sessions with drivers so's to familiarize 'em with thoroughfares out of their own district. An' it's a darn good idea to designate certain streets and roads for response of certain company units, and to make all hands in the area familiar with these routes (not only those they must travel, but t'other fellows')

* * *

IDEA TO CARRY AXES IN BELT

Many fire departments have laddermen carry their axes in their belts. Some have special belt holders for the axes; with others the practice is to slip the handle down between the belt and the coat, with the blade projecting over the belt. This sometimes leads to accidents.

C. H. Causey, of San Diego, Calif., offers a suggestion on this score. He writes: "I am on a truck company and we all have laddermen's axe belts which we wear to carry our axes. The idea we follow is to cut a piece of old 2½ inch hose in two, about 12 inches in length and to rivet this on the belt so it will come over the axe and have a snap to keep it down. This eliminates the change of the axe coming out when working high or climbing ladders. It gives the man two free hands instead of his having to hold the axe with one hand or else worry about its coming out of his belt."

* * *

The Old Timer Says—

One thing that differentiates the undisciplined volunteer company from the disciplined paid city fire company is the absence of confusion—of aimless and pointless running around, so characteristic of some volunteer outfits (oh yeah—and I've seen it in some of the *big city* departments, too).

Not infrequently this stems from the officer in charge. If *he's* goin' to act like a weather vane in a shifting wind, his men are. I kinda like the orders that most paid and some volunteer companies have of insisting that fire crews stick by their apparatus until they get definite orders from the proper authority, to go into action.

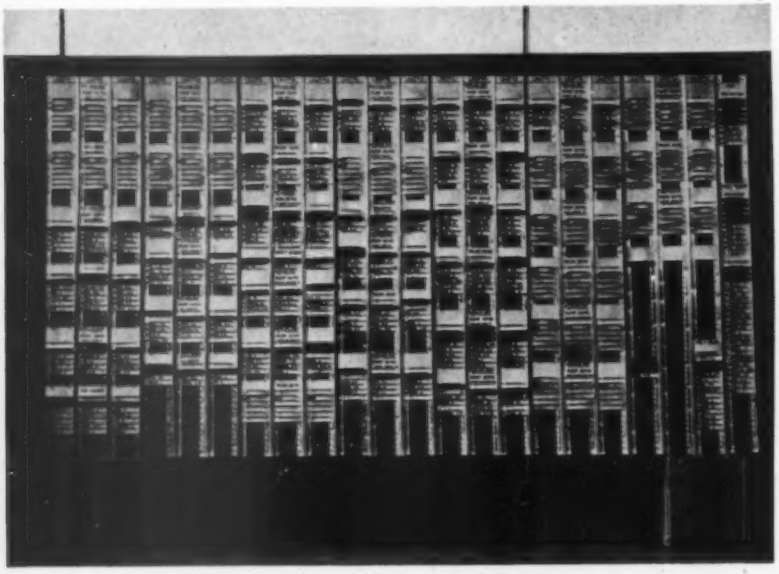
* * *

ONE LEG OF THE "FIRE TRIANGLE"

There is an interesting demonstration, which anyone can make with an empty milk bottle, piece of paper and a match, which will emphasize the importance of oxygen in its relation to fire.

Crumple a small piece of paper, drop it in a standard milk bottle, and ignite

(*Continued on page* 216)

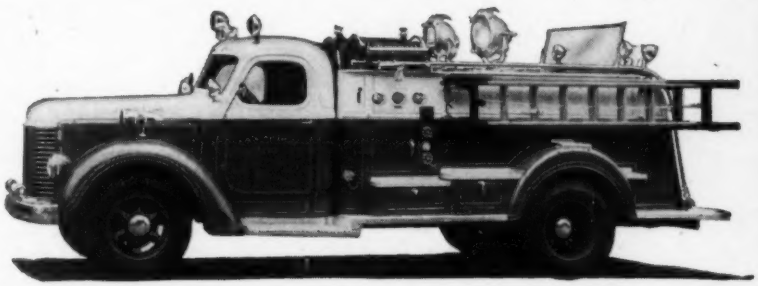


Roster Board of the Columbus, Ohio, Fire Department

Modernizing a city fire department

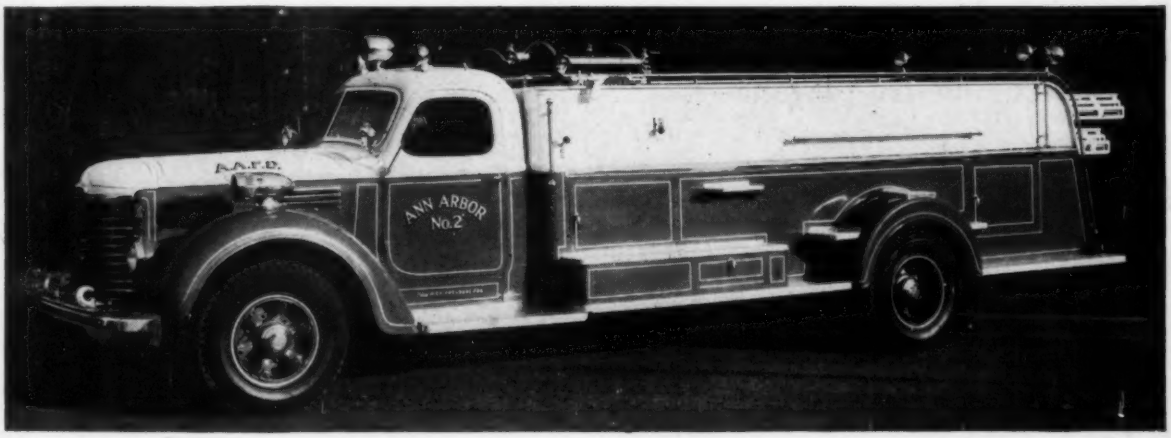
with a John BEAN HIGH-PRESSURE SQUAD TRUCK

THIS JOHN BEAN High-Pressure Squad Truck proved itself ideal at fighting city fires in Ann Arbor, Michigan. 2½-ton chassis; carries its own water supply of 435 gals.; provides two guns of 30 gals., each at 850 lbs. pump pressure.



and a...

John BEAN HIGH-PRESSURE SERVICE and LADDER TRUCK



FOR ADDITIONAL protection, Ann Arbor chose a John Bean High-Pressure Service and Ladder Truck. 5-ton chassis; 400 gals. water; assorted ladders to 45 feet; two guns of 30 gals., each at 850 lbs. pump pressure.

IS JOHN BEAN High-Pressure Fog Fire Protection suitable for city use? Read this case history of Ann Arbor, Michigan:

Two years ago, the Fire Department of Ann Arbor put a John Bean High-Pressure Squad Truck into service. It made every run from its station.

Results were beyond all expectations. Practically all fires were extinguished by Bean High-Pressure Fog.

Later, to make high-pressure fog coverage even more complete, Chief Zahn, of the Ann Arbor Fire Department, selected a John Bean High-Pressure Service and Ladder Truck. This choice had the further advantage of providing all necessary service and ladder equipment desirable when fighting fire with fog.

Now, in Ann Arbor, most of the nuisances of old-time fire fighting are gone. Water damage at blazes and excessive loss due to delay in getting to work on the fire have been eliminated.

Write us for complete information on John Bean High-Pressure Fog fire fighting and equipment.

BEAN Original HIGH-PRESSURE FOG FIRE FIGHTER

CAN BE MOUNTED ON MOST STANDARD TRUCK CHASSIS

FOOD MACHINERY AND CHEMICAL CORPORATION

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BUILDERS OF BEAN HIGH-PRESSURE PUMPS FOR OVER 60 YEARS

AMAZING NEW
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THE PORTABLE FM RADIOTELEPHONE
by Doolittle
Compact, crystal-controlled 8-tube FM transmitter and 11-tube ultra-sensitive receiver. Gives 8 hours continuous service between charges which can be made from car battery or 110 v.a.c. The "littlefone" is complete in one 8" x 8" x 3½" case. Weighs only 9 lbs. Ready for immediate 2-way operation on emergency* band. Gives 2 to 5 mile coverage between units or much greater coverage when used with a fixed station or mobile equipment. Variety of accessories available.
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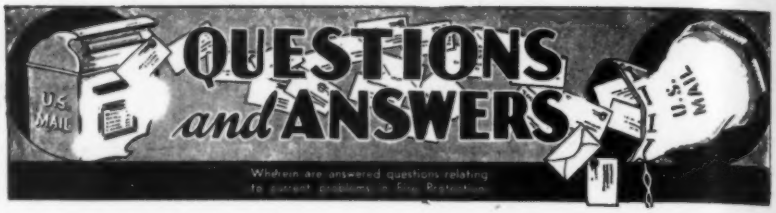

Wherein are answered questions relating to current problems in Fire Protection

Use of Churn Valve

To the Editor:

What is a churn valve used for? W. A. W.

Answer: In the positive displacement pump when the flow of water is stopped, such as by shutting down a hose line, the pump must be theoretically stopped since the discharge is directly proportional to the pump's speed. In order to eliminate the necessity of stopping the pump and to give greater flexibility in the operation of the pump, a churn valve is provided on displacement type pumps. A churn valve is simply a manually controlled by-pass between the suction and discharge sides of the pump. When this valve is opened, water from the discharge side passes into the suction side and provides a constant circulation within the pump, even with all the discharge outlets closed. Since the centrifugal pump is not of a displacement type, the churn valve is not a necessity on such pumps, although it may sometimes be provided.

If a line of hose is in operation from the discharge side of a pump, and the churn valve is partly opened, there will be a reduction in pressure on the hose line. The inverse is true: if the pump is supplying a line of hose while the churn valve is partly open, and the churn valve is completely closed, the pressure at the nozzle on the line will be increased.

Effect of Tin Roof on Rafters

To the Editor:

Does a tin roof have a tendency to draw the moisture from the supporting wooden rafters? R. M. H.

Answer: A tin roof which does not have an effective insulating material beneath it does contribute to the drying out of wooden rafters which support the roof. The reason for this is that tin is a good conductor of heat and thus conducts the heat of the sun to the space beneath the roof. This additional heat serves to distill off vapors entrained in the wood.

Actually, the tin roof does not "draw" the moisture from the supporting roof rafters, but rather distills it off by permitting heat from the sun to reach the space beneath the roof and thus raise the temperature of the wooden rafters.

Frost-Proof Extinguisher Cabinets

To the Editor:

We have several places on our railroad that we would like to build frost-proof cabinets.

What we would like to know is the proper manner to build insulated wooden boxes of a size to fit 2½-gallon soda and acid extinguishers, and heated with an electric light globe. The insulated boxes would be inside a building that is not heated. J. G. Y.

Answer: These are usually built of 1-inch matched lumber and should be six inches greater in height than the height of the extinguisher; the width should be at least two inches greater than the maximum diameter of the extinguisher, and the depth, six inches greater than the maximum diameter of the extinguisher. Ordinarily, no additional heat insulation is needed.

Lamp socket and lamp are usually mounted on the base of the cabinet adjacent to the rear wall. The cabinet is provided on the front with a door for removal of extinguisher. In a few cases, a pane of red glass is used in place of a door, with instructions to break the glass in the event the use of the extinguisher is desired.

The roof of the cabinet should be provided with two 1-inch holes for ventilation, and the base, a single- 1-inch hole. This is necessary in the summertime when vaporization in the extinguisher may cause a wetting of the interior of the cabinet.

In any case, the cabinet should be clearly marked as containing an extinguisher.

As to the size of bulb, a 60-watt bulb should be satisfactory except in places where extremely low temperatures may be encountered. In this instance, a 100-watt bulb should be sufficient.

Of course, the installation of the socket and switch should be accordance with the National Electric Code.

Refueling While Operating

To the Editor:

Should pumpers be refueled while in operation, such as when pumping at a fire, or should they be shut down to prevent sparks from the pumper exhaust igniting the fuel vapors as happened at a fire in Manchester, N. H., some time ago? J. S.

Answer: So far as we know, the common practice regarding refueling a pumper at fire is to refuel it while pumper is in operation. Ordinarily the gas tank is so placed as to be a safe distance from probable sources of ignition, and it has never been considered a serious hazard to refuel during operation.

You can appreciate the possible outcome if lines had to be shut down at a critical point to refuel a pumper, particularly if men were operating at precarious points.

We know of a couple of cases where fires have started during refueling operations, but in each instance the refueling was improperly done. In one case, gasoline was discharged into an open container for pouring into the tank on the pumper. During this process, gasoline was spilled, and ignited, resulting

in the burning up of a fire engine However, when the operation is carefully carried out, the danger is slight.

Range of Streams from Different Sized Nozzles

To the Editor:

In "Promotional Study Course for Firemen" you make the statement, "Where nozzle pressures are the same, a small diameter fire stream has a smaller range than a larger diameter stream." I would appreciate your explaining this statement. A. G.

Answer: For a given nozzle pressure, a smaller stream has less range than does a larger stream. For example, at 50 pounds nozzle pressure, a 1-inch nozzle has an effective vertical reach of 73 feet and a horizontal reach of 61 feet.

A 1⅛-inch nozzle at the same nozzle pressure has an effective of 75 feet vertically, or 66 feet horizontally.

The length of the line feeding the nozzle is immaterial, for the problem states that you have the same nozzle pressure at each nozzle. Of course, the engine pressure would not be the same even though the stretch in each case is 500 feet of 2½-inch hose, for the larger nozzle would require a larger engine pressure to maintain the nozzle pressure equal to that on the smaller nozzle.

Ladder Definitions

To the Editor:

I would appreciate your clearing up a few points for me from "The Fire Chief's Handbook." On Page 132, under definitions, the bottom or ground end of a ladder is defined as the "butt." On Page 135, there is a paragraph which reads as follows, "It is a good rule to raise all straight frame ladders heel first so that when they are broken over the roof, the heel will go direct to the point of raising." What does heel mean? Does it mean the butt?

On the same page, the book refers to "Bangors." Will you define this for me?

In raising an extension ladder, what is your opinion on having the fly toward the building? J. J. D.

Answer: The butt of a ladder (extension type) is the lower section, or the section which rests on the ground. The term "butt" is also applied to the end of a ladder which rests on the ground. The "heel" of a ladder has the same meaning as "butt" given immediately preceding, that is, the end which rests on the ground.

The Bangor ladder is an extension ladder. This term is now quite well out of use, although in old fire department literature it is the common name given to this type of ladder.

With regard to placement of the fly on an extension ladder—whether toward the building or away from the building—an extension ladder may be raised in either manner. A check made by the Editor a few years back shows that the majority of fire departments raise the extension ladders with the fly away from the building, and the minority with the fly toward the building.

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Unlimited Sales Potentialities! Dependable Service! That's the story of Safety First's amazing success. Ideal for industrial plants, busses, trailers, trucks, all motorized equipment. Safety First comes tailor-made to fit your particular needs. 5, 10, 20 and 25-pound sizes. Rated B-1 & C-1, the 10-pound Safety First extinguisher received the highest award ever given an extinguisher of corresponding poundage by Underwriters' Laboratories, Inc. Write now for full information about the complete line of amazing Safety First Dry Chemical Fire Extinguishers . . . the reliable sentinels, protecting life and property at all times.

APPOINTING DEALERS NOW

to sell Safety First Equipment on a protected basis and to service present equipment now in your territory.

SAFETY FIRST COMPANY
ELMSFORD, NEW YORK

FALSE ALARMS

Bookkeeper

The boss was questioning a prospective bookkeeper: "Of course you understand double entry?"

"Certainly," replied the applicant. "Nothing to it. Fact is that on my last job I used a triple entry system—one set for the boss to show what the real profit were, another set for the stockholders, showing that there was no profit, and a third set for the income tax people, showing a net loss."

Same

An old lady stepped up to the ticket window in the railway station and asked, "How much is a ticket to Cleveland?"

"That's two dollars and sixty-five cents," replied the ticket seller.

The old lady turned to the little girl by her side and said, "I guess we may as well buy our tickets here. I've asked at all these windows now, and they all charge the same price."

The President, Too?

The president of a business organization called in eight of his department heads for a confidential discussion. "I understand," he said, "that all of you have been dating Miss Jones, the receptionist. I want the truth now. How many of you have been taking her out?"

Seven of the execs raised their hands and looked sheepish. The big boss glared at the eighth man and intoned: "Are you SURE that you are telling the truth?"

"Yes, I am," was the reply.

"All right then," came the punchline, "You fire her."

Quick Thinking

A steward on an ocean liner was asked how he liked his work and replied, "Fine," that the tips were very generous, but that he nearly lost his job on the last trip. It seems that there were several days of rough weather and in taking a bowl of hot soup to a stateroom he unfortunately lost his balance, tripped and poured the contents of the bowl into the lap of an old gentleman asleep in a deck chair.

"And just what did you do?"

"I tapped the old fellow on the shoulder and said, 'I do hope you feel better now, sir!' "

Husband: What are you scolding Jimmy for?"

Wife: "He was cutting out pictures of George Washington, and he was using my new scissors."

Husband: "There is no harm in cutting out George Washington's picture and it certainly isn't going to hurt your scissors."

Wife: "Oh, I don't care so much for the scissors, but he was cutting Washington's picture out of dollar bills!"

Young Wife: "I bought three or four hams here a month ago and they were fine. Have you any more of them?"

Grocer: "Yes, ma'am. There are ten of those hams hanging up there now."

Young Wife: "Well, if they're off the same pig, I'll take three of them."

Lieut.: "Do you act toward your wife as you did before you married her?"

Capt.: "Exactly. I remember how I used to act when I first fell in love. I used to stand in front and look at her house, almost afraid to go in. Now I do the same thing some nights."

Twenty-five to thirty are the most trying ten years of a woman's life.

Nagging Wife: Are you sure you'll love me when I'm old and ugly?

Husband (bristling up and snapping): Who says I don't?

Grand Idea

One day a visitor found a rich man wearing a bathrobe with enormous checks, and a number inscribed on each check.

"What's the idea?" the guest inquired.

"I'll show you," offered the rich man. Summoning a butler, he yawned and ordered: "Jeeves, scratch Number 23!"

Classified Ad

Will swap 2½ bottles of "Passion Perfume" for baby diapers.

"Where d'ya get the black eye, corporal?"

"In the war."

"What war?"

"The boudoir."

Flaw

Mama: "Didn't I tell you not to go out with perfect strangers?"

Daughter: "But, Mother, he isn't perfect."

These birds who think our jokes are poor
Would straightway change their views—
If they'd compare the jokes we print
With those we cannot use.

Too Much Fish

An ardent fisherman on his fourth day at a well-known fishing lodge said to his Scotch host, "Now look, I came 3,000 miles to stay at your lodge. I'm paying fancy prices. I expected fancy food and what do I get? Salmon three meals a day for three days. I'm so damned tired of salmon I'm starting to wiggle. I tell you I'm sick of it." And he stamped out the front door.

His Scotch host yelled after him, "Mon, where are you going—home?"

He replied, "Hell, no, I'm just going up stream to spawn."

A firm bought a huge stock of silk parachutes from the War Surplus Administration, which they considered of excellent quality for manufacturing women's panties.

Buyers from most of the better stores in town contracted for thousands of these silk underthings.

Just before they were going on sale at one of the big stores, the sales personnel of that store discovered stamped on the back of almost every other one: "Count ten before pulling rip cord."

"Olga, I'll Change Into My Blue Negligee with the Peekaboo Front for the Trip Down the Ladder!"

ABC's new fire-resistant alley coating, SAFE T BOWL, has caused fire chiefs throughout the nation to make a concerted effort to eliminate by process of law the use of all inflammable bowling alley coatings. Your community can be spared disasters such as the one above by insistence on the use of this amazing new coating. Rigidly tested and approved by Underwriters' Laboratories, SAFE T BOWL, its uses and remarkable safety factors should be investigated by every fire official. May we send you complete details?

America's Best Coatings, Inc.
1632 N. Twelfth St., Milwaukee, Wisc.
I am interested in SAFE T BOWL coating and thinner. Please send details—
Name_____
Address_____
City_____ State_____

America's Best Coatings, Inc.
1632 N. TWELFTH STREET, MILWAUKEE, WISCONSIN

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World Wide Fire News

By Roi B. Woolley

Reduction of Airplane Fire Hazard Being Studied

Airplane design of the future can greatly increase passenger's chances for survival from death in the event of an accident, Dr. Clifford C. Furnas, director of the Cornell Aeronautical Laboratory, Buffalo, told the Air Safety Forum of the Cornell Club recently.

Dr. Furnas predicted that the results of future design changes in aircraft would be as important from a safety standpoint as those in railway operation resulting from substitution of steel for wooden coaches.

He disclosed that the Navy has already contracted with his laboratory to develop an "inerting system" for making safe at all times against fire the vapor space in fuel tanks and the wing space surrounding these tanks during flight or on the ground.

One of the contemplated improvements is the use of external wing tip fuel tanks in transport planes. According to Dr. Furnas, such tip tanks would have these effects: "(1) All fuel could be jettisoned if a crash is imminent; (2) impact separation of such tanks could be incorporated for circumstances where there was no forewarning of a crash and the tanks would follow their own course away from the airplane, and (3) due to the remoteness of the fuel from the passengers the fire hazard could be reduced to a minimum."

Another problem studied is "head impact" in airplane accidents. Dr. Furnas disclosed that a plastic-head form had been developed which could be thrown at high velocity against typical elements of aircraft structure (this head to simulate the human head). "The experiments thus far have indicated that these heads can stand a great deal of punishment without fracture, provided the structure which they strike is properly designed to slow the head down uniformly and to distribute the pressure of the blow" Dr. Furnas revealed. "Through these studies we hope to point the way to building airplanes in which the occupant shall have a reasonable chance of survival even in crash of up to 100 miles an hour."

* * *

Big Inch Pipe Line Fire Costly

Fire, starting about 10:15 P.M., Jan. 17, 1949 in the pumping station of the Big Inch and Little Inch pipe lines, at Morris, near Batesville, Ind., destroyed the pumping station and a nearby steel building of the Federal government and caused damage estimated at over $200,000, to the latter property alone.

The fire, which originated from an electric arc in connection with a power failure due to high winds, it is said, communicated to the Big Inch pipe line, sending flames roaring 100 feet into the air and keep everyone a distance of 200 yards.

The gas, which continued to burn all during the morning, came from a 110-mile stretch of 24-inch, the Big-Inch line between Seymore, Ind., and Lebanon, O. As quickly as possible the line was cut off by valves at these points but the gas in the lines fed the fire until it was exhausted. Workmen said the fire was left to burn itself out because there was danger of the fire backing up into the lines and causing an explosion if an attempt were made to extinguish it. Gas will be routed past the fire scene through by-pass lines.

A fire last November at the Seymour, Ind., pumping station caused a loss of $3,000,000.

The Little Inch pipe line, which also goes through the Morris pumping stations, was not involved, contrary to earlier reports of the blaze.

* * *

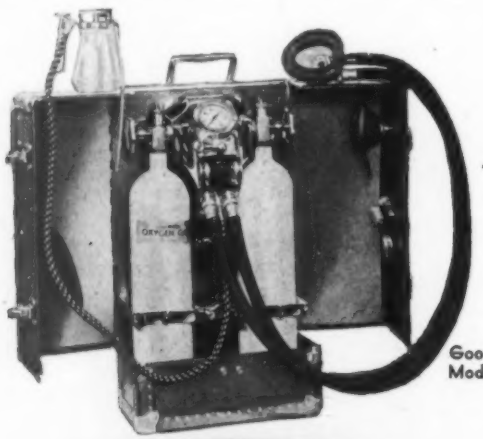
Warning System "Too Poor to Describe"

Congress was told by Maj. Gen. Gordon P. Saville, head of the Air Defense Command, in February that the nation's air warning defense system was so inadequate that "words would be impossible to describe how poor it was." He called it "almost a blank."

He urged approval of a $161 million plan under which the Air Force could throw radar screen around the nation, with outposts at sea and around the world. The General also declared that radar protection in Alaska "is totally and wholly inadequate."

Gen. Saville spoke in support of a bill by Rep. Durham (D., N.C.) to authorize an effective radar screen defense. It would give the Air Force full responsibility for guarding the nation from air attack.

Prior to the hearing before the House Armed Services Committee, the Air Force was asked whether a screen would



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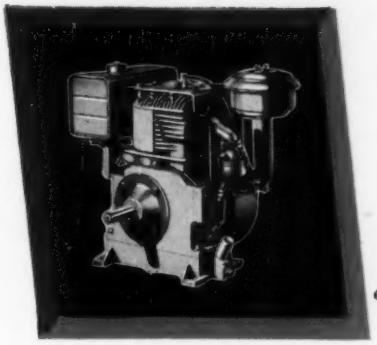
be any avail in guarding the United States from attack by long-range bombers. The Air Force's reply was: "The system to be authorized is designed to provide a defense against enemy long-range strategic bombers; total protection with known weapons is an impossibility."

What's Burning

THE following list includes fires of $10,000 loss and over in the United States and Canada for the month of February, 1949:

Month Ending February 28, 1949

Delhi, Ont.—Bldg. owned by H. B. and Douglas Cockburn, occupied by machine shop, foundry and machinery sales room of owners and bowling alley of John Fodor, destroyed.
Hamilton, Ont.—Business bldg. occupied by Certified Electric Co., Fine Papers Hamilton, Ltd., and White and Paikin Law offices, damaged.
Ville St. Laurent, Que.—Modern Steel Works, Ltd., destroyed.
Emeryville, Calif.—Dugan Cafe destroyed.
Denver, Colo.—Tabor Bldg., business block, damaged.
Fair Haven Vt.—Veneer Products Co. destroyed.
Canastota N. Y.—Produce whse. of Smith-Coulter Co., Inc.
Rochester, N. Y.—Rochester Club, destroyed.
Cambridge Springs, Pa.—Bldg. occupied by Hood Hotel, A & P market and State liquor store, destroyed.
Yakima, Wash.—Potlatch Lumber Co., Buena, destroyed. Faulty stove.
Charleston, S.C.—Bldg. occupied by the offices of the Charleston County School system, damaged.
Montgomery, Ala.—Bldg. at Maxwell Air Force base, occupied by plumbing, paint, carpentry, electric heating and refrigerating shops, destroyed.
Springfield, Ill.—Apt. bldg. destroyed. Spontaneous ignition.
North Adams, Mass.—Business bldg. on banks of Hoosac River, destroyed. Occupants included Smith Furniture Co., Chaperon Auto Parts Co., Casino Bowling Alleys, Miller, Lamb & Hunter Printing Co., Hoosac Valley Athletic Club, Patasick Produce Co., Carl Sharkey Sign Co. and Riverside Machine Co.
Albany, N. Y.—Grace Methodist Church, destroyed.
Trenton, Tenn.—Five bldgs., Main Street, destroyed.
Fair Haven, Vt.—Veneer Products Co., destroyed.
Lexington, Va.—Bldg. of Iocher Silica Corp. plt., destroyed.
Matewan, W. Va.—Matewan Lumber Supply & Realty Co., damaged.
San Francisco, Cal.—Sun Tent-Luebbert Co., damaged.
Burlington, N. C.—Glen Hope Baptist Church, destroyed. Oil stove.
Gowanda, N. Y.—Business block occupied by Russell Refrigeration Service, Dial Furniture Co. and Bently Grocery, destroyed.
Guymon, Okla.—Shamrock Cafe and Wadley Implement Co., damaged.
Tacoma, Wash.—Dynamite-stocked bldg., E. I. duPont de Nemours Co. plt., destroyed.
Ottawa, Ont.—St. Elijoh Syrian Orthodox Church destroyed. Oil furnace.
Hazard, Ky.—Bldg. occupied by Seale Motor Company and five apts., damaged.
Denham Springs, La.—Denham Springs High School destroyed.
Adams, Mass.—Bldg. occupied by clothing store of Abe Sokolove and apt. of Adeline A. Gilmore; and adj. jewelry shop of A. S. Frieze, damaged.
Gaylord, Mich.—Gaylord Municipal bldg., occupied by city hall, library and civic auditorium, damaged.
Ashtabula, Ohio—Bldg. occupied by Eyjan Bros. Grocery & Market and Reed Jewelry Store, destroyed. Faulty wiring.
Cuyahoga Heights, Ohio—Aluminum Co. of America plt. destroyed. Defective wiring.
Erie, Pa.—Foundry bldg. No. 1 of National Erie Corp., damaged.
Philadelphia, Pa.—Historic stone barn, Lincoln Highway, near Chestnut Road, outskirts of Paoli's business district, used as interior decorators' hdqts. and an antique dealer's shop, destroyed. Short circuit.
Hazelton, Pa.—Plt. of Hazelton Planing Mill Co., East Hazelton, and adj. bldg. occupied by Wyoming Sheet Metal & Engineering Co., George DeLallo plumbing contractor, Hazelton



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4 CYCLE
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GASOLINE ENGINES
World Wide FACTORY SUPERVISED SERVICE

Venetian Blind Mfg. Co. and American News Co., damaged.
Philadelphia, Pa. — Night Crawford Furriers, damaged.
Morgantown, W. Va.—Whse. destroyed.
Connell, Wash. — Connell Grain Growers Co-operative whse. destroyed.
Hope, B. C.—Fort Hope Hotel, Cariboo Cafe and Riverside Gift Shoppe destroyed.
Churchill, Man.—R.C.A.F. control tower and operation bldg., destroyed.
Gilbert Plains, Man.—Commercial Hotel and general store damaged.
Shoal Lake, Man.—Eight stores (J. J. Deslatnyk butcher shop, poolroom and barber shop of M. Popowich, Stanley Musgrive Electric Shop, H. H. Pollock's drug store and office of Dr. S. Bardal, Dr. B. Friesin, Dr. D. J. Lawson), damaged.
Rout Creek, Ont.—Two store-apt. bldgs., whse. and feed store, destroyed.
Des Moines, Ia.—Fair Play Mfg. Co. plt., electrical scoreboard mfrs., destroyed.
Augusta, Me.—Parrott block, apt. bldg., damaged.
Lenox, Mass. — The interior of Our Lady of Mercy Roman Catholic preparatory school destroyed.
Kilgore, Tex.—Seven oil tanks, J. A. Stack Tank-Cleaning Co., damaged.
Kimball, W. Va.—Bldg. occupied by Clark hardware and furniture store and Rexall drug store destroyed.
Chesley, Ont.—Bruce County Town School, destroyed.
Jordan, Ont.—Corbett Basket factory destroyed.
Marynard, Ark. — The Marynard Consolidated School, near Pocahontas Randolph County, damaged.
Moravia, N. Y.—Sheffield Farms Milk plt. destroyed.
Montreal, Que.—Business bldg., St. Catherine and Bleury streets, damaged.
Farnham, Que.—Canadian Pacific Railway Station, destroyed.
Woodland Hills, Cal.—Bunkhouse, barns containing antiques, on ranch of Lindley F. Bothwell, destroyed.
Key West, Fla.—Ice factory destroyed.
Colby, Kan.—Grain elevator of Derby Grain Co., destroyed.
Hamilton, Mo.—Artilla Theatre, destroyed. Garage and and salvage yds. of Kavanaugh Motor Co., damaged.
Mokane, Mo.—Eleven cars of fuel oil of eastbound freight train of Missouri-Kansas-Texas Railroad, destroyed.
Seneca, Mo.—Food market, hardware store and electric shop, damaged.
Warner, Alta.—Hotel and bank, destroyed.
Campbellton, N. B.—Wholesale grocery whse. owned by Atlantic Wholesalers, Ltd., destroyed.
Orillia, Ont.—Bldg., occupied by Royal Hotel and hardware store, destroyed.
Chicago, Ill.—Bldgs. occupied by Kent Distributing Co. and Harbor Lumber Co., damaged.
Rosebud, Tex.—Rosebud Methodist Church, destroyed.
Bearden, Ark.—Fire of unknown origin destroyed the sawmill of the Bearden Lumber Co.
Winkler, Man.—Seven business establishments (egg grading station at Winkler product plt.; Home Lumber Co.; South End Motors; Newfeld Implement Shop, South End Woodworks; E. H. Mann drug store and Miller's Electric shop) damaged.
Clarkson, Ont.—Plaza Lodge, tourist resort, destroyed.
Toronto, Ont.—Two bldgs. at Longworth Milling Co. destroyed.
Shaunavon, Sask.—Pioneer Grain Elevator destroyed. Overheated driveshaft.
Troy, N. Y.—Bldg. occupied by restaurant and beauty salon, damaged.
Grover Hill, Ohio—Bldg. of Farm and Home Store destroyed.
Fostoria, Ohio—Cold Spot Repair Co. plt., damaged.
Raines, Tenn.—Bldg. of Reynolds Metal Co., destroyed.
Tullahoma, Tenn. — Community center bldg., owned by city, used as library, destroyed.
Norfolk, Va.—Park Place Methodist Church destroyed.
Barboursville, W. Va.—Nelson Lumber Co. plt., destroyed. Also adj. dwelling destroyed.
Spokane, Wash.—American Laundry, destroyed.
Rock Island, Ill.—Whse. of Illinois Wholesale Grocery Co., damaged.
Port Huron, Mich.—Combined Port Huron city hall and St. Clair County courthouse bldg., damaged.
Carteret, N. J.—Oil tank farm of American Oil Co., damaged.
Manlius, N. Y.—Refining shop of S. Cheney & Son Foundry, damaged. Defective wiring.
Chicago, Ill.—Bldg. occupied by Kogen Mfg. Co., Western Picture Frame Co. and Harbor Lumber Co. and dwellings, damaged.
Eden, Man.—Garage of George Pardis, Implement shop of Vic Wilson and Red & White grocery store, destroyed.
Yarmouth, N. S.—Yarmouth County Academy, destroyed.
Toronto, Ont.—F. V. Johnston bldg., damaged.
New Canaan, Conn.—Dwelling of John D. Dale, destroyed.
Stamford, Conn.—Rocky Hill Country Club, damaged.
Clinton, Ia.—Bldg. occupied by Servisoft Water Service Co., destroyed. Bldg. occupied by Servisoft Shoppers Laundry, damaged.
Mapleton, Kan.—Business block, Bourbon County, occupied by Zimmerman feed store, Boyd furniture store, Camp's barber shop, Nevis hatchery and annex, Wellington cream station, Maxwell restaurant, Johnson produce and McHenry grocery, destroyed.
Boston, Mass. — Hayes-Bickford's restaurant, damaged.
Reading, Pa.—Fairview Garde School, Kenhorst, mile southwest, damaged.
Lind, Wash.—Office and laboratory of Washington State Dry Land Station, destroyed.
Montreal, Que.—Six stores in business block on St. Catherine sreet, damaged.
Fairbury, Ill.—Honnegar feed mill destroyed.
La Salle, Ill.—Two story brick Vollmer bldg., destroyed.
Gambier, Ohio—The 122-year-old dormitory of Kenyon College, damaged.
Exeter, Pa.—Beacon night club, damaged.
San Antonio, Tex.—Bldg. of Carl Pool Chemical Co. plt., destroyed. Spontaneous ignition.
Palouse, Wash.—Palouse Pharmacy, Williamson's Dept. Store, apts. damaged.
Huntington, W. Va.—Four-story Sears-Roebuck & Co. bldg., damaged.
Pouce Coupe, B. C.—Pouce Coupe Trading Co. store and dwelling, destroyed.
Swink, Colo.—Whse. containing onions on farm of Charles Williams, destroyed.
Boston, Mass. — Mercantile bldg., Roslindale Square, damaged.
Everett, Mass.—Whse. owned by Behem Storage and Whse. Corp., damaged.
Penns Grove, N. J.—All American Stores super market and double dwelling, destroyed.
Dover Plains, N. Y.—Feed and machinery whse. of Willson & Eaton Co. and Waugh Ice plt., destroyed.
Rensselaer, N. Y.—Schodack Valley Grist Mill, Castleton, destroyed.
Harrisburg, Pa.—Motor Parts Co., distributors for Columbia records and household appliances damaged.
Hazelton, Pa.—Furniture store of Thomas Powell and adj. cafe, damaged. Both bldgs. included apts.

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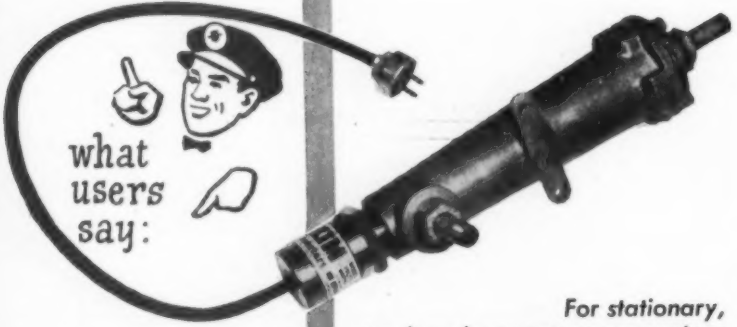
Quick, easy starts regardless of weather



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—Supt. of transportation for a large utility company.

"The best thing on the market to warm up the motors in our lift trucks, carriers and gasoline trucks during winter months."
—Secretary-treasurer of a lumber products manufacturer.

"Performance has been excellent. Because of the savings in engine maintenance we, as fleet owners, would not be without KIM Hotstarts."
—Fleet superintendent of a baking company.

- ✓ Quick, easy starts in any weather.
- ✓ Reduces motor wear and depreciation.
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- ✓ Cuts cost of terminal heating.
- ✓ Quickly installed — four models.
- ✓ Use coupon for illustrated literature.

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Please send literature, prices and name of local dealer.
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Company
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York, Pa.—Plt. of Parker Products, Inc., television table mfrs., destroyed.
Coalmont, Tenn.—Coalmont Grammar School destroyed.
Corsicana, Tex.—Velvet Ice Cream Co. damaged.
St. Chrysostome, Que.—Business section, including station, damaged.
Lancaster, Ky.—Garrard County Stockyards destroyed.
Chattanooga, Tenn.—G. Russell Brown Elementary School damaged.
Urbanna Va.—Rappahanna Theatre destroyed. Adj. Southside Sentinel Newspaper plt. damaged.
Hamlin, W. Va.—Hamlin High School destroyed.
Montreal Que.—Several firemen were overcome by smoke in a fire at the Toycraft Mfg. Co., an electrician's shop and a printer's shop. Thirty families from nine adj. dwellings were safely evacuated.
Millburn, N. J.—L. Bamberger & Co., radio and appliance center, destroyed.
Stamford, Conn.—Rocky Hill Country Club destroyed.
Jeffersonville, Ind.—John Vissing Garage destroyed.
Los Angeles, Cal.—Dwelling of Jimmy Dorsey, damaged.
Hammond, La.—Hammond Trades School and Central Trade School, operated for veterans, destroyed.
Alpena, Mich.—Neumann business bldg., occupied by tire and battery shop of Martin Neumann and Henry Kahn and Dick's Grocery, damaged.
Cleveland, Ohio—Shaker Moreland Co. business block destroyed. Occupants included Colony Drug Co., Kroger Grocery & Baking Co., Peck & Peck, Shaker Square Bowling Co., Alfred J. Heil, florist, Hough Home Bakery, Inc., Fisher Bros. Co., Franklin Simon Shoes, Jack Kallagher's barbershop, Toy Chest, Inc., Punch & Judy Lounge Bar and Michael N. Andrews Beauty Salon.
Vancouver, B. C.—Vancouver Intl. Airport Admin. bldg., control tower and main offices of United Trans-Canada and Canadian Pacific air lines, destroyed. Coast Whse. Co. bldg., damaged.
Juneau, Alaska—Commissary bunkhouse of P. E. Harris Cannery Co. destroyed.
Eastport, Me.—Argenta Products Co. plt., mfrs. of pearl essence, fish glue and fire foam, destroyed.
Cheboygan, Mich.—Gold Front bldg. destroyed.
Castleton, N. Y.—The Shodac Valley Grist Mill destroyed.

Buff Club Elects

"The 242 Club," a fire buff organization of Brooklyn, N. Y., recently re-elected its entire slate of officers for another year, as follows: President, John Clifford; Vice President, Ed. Nelson; Secretary, George Hurst, and Treasurer, Ed. Hearon. The Club has twenty active members. Headquarters of the Club are at 9219 Fifth Avenue, Brooklyn 9, N. Y.

Interruptor for Fire Siren Tone

By D. R. RITCHEY*

To make the sound of the fire apparatus siren more penetrating and more distinctive, an attachment has been devised (U. S. Patent 2,436,603) which is designed to periodically interrupt the continous sound of the siren. The second is broken into quarter-second blasts, with quarter-second periods of silence, by an automatically operating interruption.

This device is attached to any standard siren without altering the action of the siren. The horn or grill of the siren is removed and in its place the attachment is installed and so connected to the apparatus that, when the siren goes into service, the air is prevented from entering the siren for a quarter-second and then admitted for a quarter-second and so on.

The quarter-second blast has proven to give best results. It is short enough not to leave the driver with the feeling that he waiting for a warning signal.

*6101 Ridge Drive N.W., Washington 16, D. C. Member of District of Columbia Fire Department.

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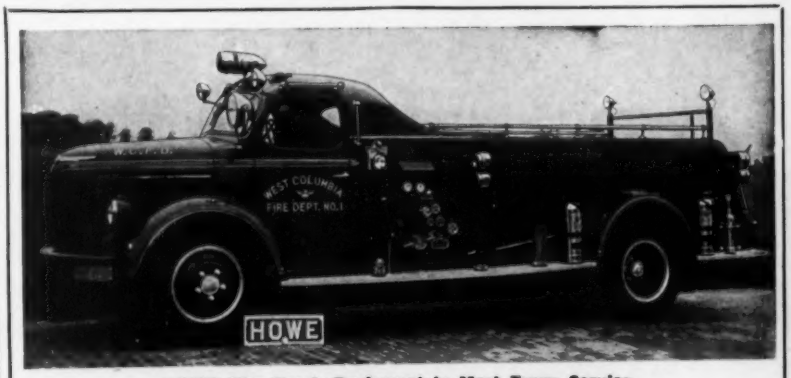

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HOWE FIRE APPARATUS COMPANY, 1402 West 22nd Street, Anderson, Indiana

"But how was that? You have had a good job and a steady income for years."

"My family kept growing and my expenses always outdistanced my paycheck even with several raises."

"You seem to be getting along all right now. What did you do?"

"I discovered a simple way to supplement my income. I invested a small part of my savings in a few Hamilton coin-operated scales and to my amazement I was shortly realizing over 50% profit."

"Doesn't it take a lot of your time?"

"That is the wonderful part of it. Hamilton Scales are extremely simple in construction and never require any service. My son, Jack, and I visit each scale only three or four times a year to collect the pennies. I have over a hundred scales now and I figure we each average about one day's work a month to run our route."

"How much do you make on a hundred Hamilton Scales?"

"My net income has averaged $300.00 per month now for several years."

"That's amazing, do you suppose I can start a route too?"

"You sure can, just write direct to Hamilton Scale Company, they will give you all the information. Hamiltons carry the lowest price to operators and are the best value among the approved scales. You can buy them on deferred payments too!"

"That's for me. I will write them today. Thanks for the tip, Bill."

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HAMILTON SCALES

The ROUND TABLE

For Practical Discussion of Current Fire Department and Fire Management Problems

ALL YEAR 'ROUND FIREMEN'S TRAINING

THE discussion in this Round Table is a continuation of that which appeared in the January and February issues of FIRE ENGINEERING on firemen's training programs.

The generous response from our readers makes it necessary to carry the discussion over to this issue and to next month's as well.

Readers are invited to send in their comments on this subject to Round Table Editor, FIRE ENGINEERING, 24 West 40th Street, New York 18, N. Y.

HERE IS THE TOPIC

1. **Are your firemen given outside training and instruction the year round? If not, in what seasons of the year?**
2. **Do they also receive inside training, i.e., lectures and blackboard work, etc., the year round? If not, in what seasons of the year?**
3. **What do you think should be done to improve training in the fire service?**

Discussion of Question

T. J. Wrenn, Chief, Springfield, Mass.: Outside training is given as long as the weather permits. Inside training is given the year round.

I believe that due to the shorter work week, the present method of training firemen is entirely inadequate.

When the longer work week was in vogue, the men attended more fires and learned from experience how to fight them. This with the general training in handling equipment worked out quite well.

Under present conditions the lack of fire experience shows a real weakness.

The average city or town cannot afford to set up a training program sufficient to meet present-day needs, as I see them; therefore, I believe that larger units of government such as states must set up training schools where all phases of fire fighting may be taught under actual fire conditions.

The following paragraphs from a talk I presented some time ago before the Governor's Conference on Fire Prevention clarifies my thoughts on the subject.

"We believe that the only possible way to give men the needed experience in fighting fires is by having one or more State Schools established under the Vocational Division, State Department of Education, where members of the different departments throughout the State, particularly the newer members, can attend and receive definite instructions in the actual handling of fires. This is not a new idea but it is an adaptation of the methods used by the Armed Forces, with great success, in fire training during the war.

"The United States Navy, during the war, established a Fire Fighters' School in South Boston for the purpose of instituting a training program for Navy personnel to fight ship fires. This establishment is equipped with valuable fire fighting apparatus together with fully equipped lecture rooms, projection equipment and housing, all of which can be put to good use in this program.

"We recommend that immediate steps be taken to acquire the South Boston installation for use of the State-wide school.

"Officers' training should be established for those responsible from the administrative, managerial and supervisory standpoints. It is imperative that fire officers should be well beyond basic operational skill in connection with fire apparatus which must be acquired by all rank and file firemen. The training of officers largely centers around the further development of leadership ability, the satisfactory directing and handling of men, the organization of the work of the department and advanced technical problems.

"We recommend that the State-wide School shall include the three phases:

"1. Basic and technical operational training for the rank and file men.

"2. Officers' schools.

"3. Instructors and conference leaders preparation."

M. J. Hayden, Chief, Bridgeport, Conn.: Here in Bridgeport we have instruction the year round. In good weather from Spring until Fall drills are conducted outside at the drill tower. All men receive training in their respective companies through the Winter and bad weather.

The best training a fireman can have, in my opinion, is to work with trained officers and men at severe working fires. All young men should be shifted once in a while so as to become acquainted with different parts of the city and the way different officers work.

Howard Travers, Chief, Baltimore, Md.: Firemen in Baltimore are given outside training the year round. They

also receive inside training the year round.

Continuation of intensive instruction in modern fire fighting methods, fire extinguishing facilities and fire prevention activities will help to improve fire service training.

Lorenzo J. Jones, Chief, Duluth, Minn.: Outside training at the drill tower is conducted during the months of May, June, July, August, September and October. Lectures, problems, etc., are given during winter months.

If funds are available for more manpower, apparatus hook-ups and practical training should be given. The war was won by rehearsal after rehearsal and all fire departments should work likewise.

Clement Murphy, Chief, Washington, D. C.: Both inside and outside training is given to members of the Washington Fire Department the year round.

G. F. Vernotzy, Drill Master, Akron, Ohio: Outside training is given when weather conditions permit. Inside training is given the year round.

I believe fire departments should provide better facilities, such as buildings, etc.

L. D. Blanton, Chief, Tampa, Fla.: Firemen in this department receive outside training during the summer months, except during rainy season. Talks on different types of fires are given at any time.

Inside training such as rope knot tying, blackboard work, is given in the winter.

I believe a regularly scheduled drill school should be held, giving practice in operating all types of fire fighting equipment such as ladders, pumps, hose layouts, water fog, foam. The instruction should also include life-saving using aerial ladders and life nets.

Howard Dey, Chief, New Orleans, La.: Firemen in New Orleans are given outside training and instruction the year round. They also receive inside training the year round.

In order to improve training in the fire service, I believe a man should be released from all other duties during his training period. He should be given full pay while he is training.

William D. Thomas, Chief, Binghamton, N. Y.: Outside training is given in the spring, summer and fall of each year. As soon as the weather permits our outside training starts with actual pumping instructions. The instruction in pumping is given twice a year usually during the spring or early summer and again in the fall. Our aerial ladders are taken out one at a time so that all pump operators receive instructions pumping through the ladder pipes and see the aerial ladder in operation. Also at this time besides pumping through the different hose layouts, deluge sets and multi-versal nozzles are set up. On Sunday mornings weather permitting our aerial ladder companies go out in their respective districts and raise the aerial ladder against different buildings. All companies receive instruction in the various evolutions twice a year during the summer and the fall at the training tower.

Station evolutions are held at least once a week by each shift under the supervision of the company commander. Lectures, blackboard work,

FIRE CHIEFS SAY—

"When Fire Starts — Seconds Count"

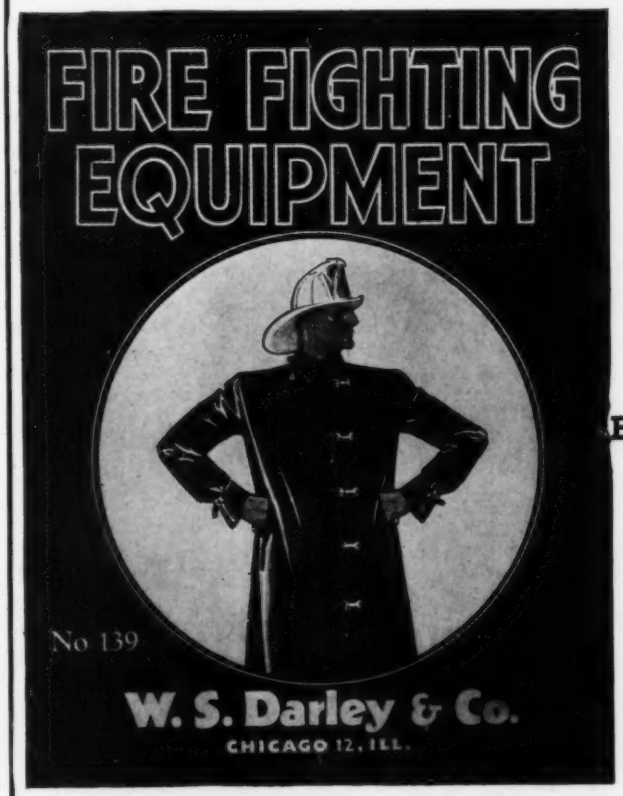
PROGRESSIVE CHIEFS are now looking to automatic fire detection for the true answer for stopping the increase in fire losses.

ATMO is the famous "Rate of Rise" system that automatically calls the fire department and sounds the alarm within seconds when fire starts.

The ATMO System is approved by
Underwriters' Laboratories, Inc.
Factory Mutual Laboratories, Board of Standards and Appeals, City of New York

ATMO ACTS in SECONDS to STOP FIRE

J. H. SCHARFF, Inc.
36 MAIN STREET, ORANGE, NEW JERSEY
ORANGE 5-6002



NEW 100 PAGE CATALOG

• Everything for Fire Depts. •

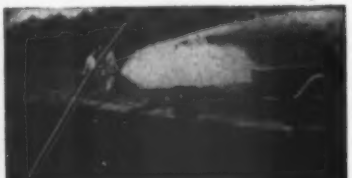
Write Today For Your Copy

FIGHT FIRES 3 WAYS with a HALE FZZ!

• *Solid Stream* • *Fog* • *Foam*

With a ready-for-for use Hale FZZ you can fight fires not only with solid stream and/or fog, but also with foam —an extremely valuable weapon against gasoline tank truck fires. (*Foam proportioner is built in, if specified.) The easily portable FZZ can be mounted in any apparatus, making it possible to fight fires while apparatus is in motion, using booster tank for source of water. CAPACITY 60 G.P.M. at 90 lbs. pressure; 150 G.P.M. at 30 lbs. pressure.

Nip Brush Fires in the Bud!



Pumping Solid Stream and Fog.

Here's an FZZ Pumping Foam

*Write for FZZ folder and Bulletin on How to Use Foam with an FZZ.

HALE FIRE PUMP COMPANY

CONSHOHOCKEN, PA.

Fire Pumps in all Standard Capacities

etc., is given by the training instructor during the winter months and at various times in bad weather.

I believe that the fire training towers that we have in most cities today are obsolete for training in modern methods for the fire service today. To improve the training and have a better fire service, I believe we should have a fireproof building with enough land so that actual fires could be built and extinguished on the ground and in the building. The building should be erected with sprinkler and standpipe installation. The doors and windows inside and out used in the construction of the building should be of the various kinds, make and construction that are found in various buildings today in actual fire conditions. A building like this of four or more stories could also be used for the various evolutions that are now performed on the drill tower. An underground tank or concrete pool should be erected in the yard for instruction in drafting; also a water main with a hydrant for general pumping instruction.

Frank E. Willoughby, Captain, Solvay, N. Y.: Our company, Engine 3, Solvay Fire Department, (Volunteer) holds weekly classes, using lectures, movies and blackboard discussions during the winter months and pumper drills and ladder work during the summer months.

For our class work we have combined the Oklahoma A & M and the Firemen's Training Course of the University of Maryland as well as abstracts from The Fire Chief's Handbook, Questions and Answers for Lieutenants and Captains, Handbook of Fire Protection as well as yearbooks of the N. Y. State Association of Fire Chiefs.

We also have been fortunate in having complete cooperation from Chief William Connelly, Syracause, who has sent his instructor to our school on various class nights.

At present time we have contacted a local, commercial photographer, who answers all alarms and takes pictures of the fire for us to discuss in our next class. He also photographs local buildings for our use as we simulate fires in these locations.

We have shown every available fire film in the past two years in our classes and have had some of the outstanding fire safety films shown in our local schools for the children's benefit.

We believe that one of the most important things that could be done to improve training for volunteer firemen would be to have more films available such as produced by the Ohio Fire Chiefs' Association.

R. E. Paré, Chief, Montreal, Que.: Our department does outside training twice a week from April to October, using apparatus, ladders and hose. This drill is under the supervision of the station officer. There is no definite syllabus followed in these evolutions, they being at the discretion of the company commander.

There is inside training in quarters twice a week with tools, during winter months. The Training School issues "Study Bulletins" each month and every officer and man is expected to follow the instruction sheet on the methods to follow in studying the Bulletin. This instruction tells each one to transcribe the issue in a loose-leaf binder, answering the questions to the best of his ability or commenting on the articles, which are sometimes sent out. With the next month's bulletin, the answers are sent to cover the previous bulletin. Then the men check their answers against the School's answers, thereby noting the weak spots in each man's knowledge of the various subjects.

To improve training in the fire service, we suggest the following: wider adoption of our system of study bulletins, the laying out of a practical definite program of in-service and out-door drills based on the material in the bulletins and insistence that the principles and methods taught be practiced on the fire ground.

C. G. Burnett, Chief, Ottawa, Ont.: This department working on three eight-hour shifts operates a drill school on the day shift with a district chief drill instructor in charge.

In the winter months it is rather difficult to spare enough men from the fire apparatus to operate a full scale drill school and it becomes necessary for the drill instructor to drill at the fire stations with the members on the day shift. Weather permitting all drills are carried on outside.

Each station is equipped with a station blackboard for drill purposes and discussion periods are held each day by the station officer during his shift the year round.

In my opinion, members of fire departments are fast to realize their responsibilities and are very eager to receive proper training and information on all matters pertaining to the fire service in order to better their position. However, with the increased number of days off duty allotted to members, most fire departments are undermanned and are not able to carry out certain fire equipment evolutions, unless assisted by members from another station. I believe that a central fire school where different fire departments can send their members would greatly assist in the training for fire control and the standardization of training on fire appartus and equipment, which I realize is a very vital concern of all departments.

P. J. Daly, Chief, Toledo, Ohio: Firemen in Toledo are given outside training from April to November 1 of each year.

Inside training, consisting of lectures, first aid work, etc., is given all year round.

I believe the use of motion pictures of fire methods would help to improve training. The Ohio Fire Chiefs Association have such a film which is being shown to personnel of various Ohio fire departments.

John F. Collins, Chief, Cambridge, Mass.: Intensive training on the outside, weather permitting, is provided from April to November. Inside training is held during the winter months at the various fire stations, which includes discussions and talks on past fires, inspection of buildings, first aid, etc.

I believe a set-up similar to the fire schools maintained by the U. S. Navy during the recent war, organized on a state-wide basis for all departments in the state, would be helpful.

News of the Manufacturers

(*Continued from page* 198)

It is said for "littlefone" that it is engineered and built for rugged dependable service; is easy to carry; simple to operate and does not require special technique or special service equipment for maintenance.

Full particulars may be had from Doolittle Radio Inc., 7421 S. Loomis Blvd., Chicago 36, Ill., mentioning FIRE ENGINEERING.

New Extinguishers by Fyr-Fyter

Two new fire extinguishers incorporating a major improvement are announced by the Fyr-Fyter Company, Dayton, Ohio.

This improvement is the use of stainless steel (18-8 and 18-7) instead of copper for both the 2½ gallon soda-

New Fyr-Fyter Extinguishers of Stainless Steel

acid type and the 2½ gallon foam type. Advantages claimed are: Five pounds lighter, making the extinguisher easier to lift and operate; extra strength, these new soda-acid and foam extinguishers carry the Underwriters' 500 lb. test label instead of the conventional 350 lb. test label; a polished finished which retains its luster longer; greater resistance to denting and rough handling; lower production costs which are reflected in lower retail costs.

These new 500 lb. test Fyr-Fyter extinguishers are know as the *Silver-lite* 500 series. They are currently in production by the Fyr-Fyter Company.

New Battery by Carpenter

The Carpenter Manufacturing Company, of Somerville (Boston 45), Mass., has announced a new multiple cell 7½-volt dry battery pack which they have recently developed.

The battery, while suitable for low amperage drains, is especially effective for continuous use above ½ to 3 amperes per hour where it out performs old style 7½-volt batteries by as much as 300 per cent, according to the manufacturer.

The company makes the "Mile-Range" hand searchlights and work lights used by fire and police departments, and others. To get a suitable battery, they

SAFETY CLIMBS WITH YOU

. . . ON *ORIGINAL* ALUMINUM LADDERS

Safety is at your side when you buy *original* Aluminum Fire Ladders. Weighing half as much as hardwood, Aluminum Ladders are easier to handle, are raised more quickly with fewer men. *Original* Aluminum Ladders are stronger. Heavily riveted and built of high tensile strength aluminum alloy, they carry many times the capacity of ordinary ladders. Their corrugated rungs are secured by aluminum expansion bushings . . . never loosen, never break off.

Your purchase of the best—of *original* Aluminum Ladders—is fully justified by their long service. Aluminum ladders won't splinter, rust, rot nor burn. Today, *original* Aluminum Ladders built 18 years ago are still in full, active service.

READY NOW — *Write for folder with photographs, specifications and prices covering our complete line of Light and Heavy Duty Fire Ladders.*

Aluminum Ladder Company

200 Carbis Street
Worthington, Pa.

ORIGINAL MANUFACTURERS OF ALUMINUM FIRE LADDERS

AMERICAN-MARSH PUMPS

BEAR UP LONGER

Makers of the Barton-American Front Mounted and Mid-ship Mounted Fire Pumps.

PUMP MANUFACTURERS SINCE 1873

AMERICAN-MARSH PUMPS, INC.

BATTLE CREEK • MICHIGAN

IN CANADA: C. E. Hickey & Sons, Limited, Hamilton, Ontario

OFFICER'S
AUTO
PLATES

Cast in solid bronze and heavily chromium plated, these handsome plates are indestructible. The sun-ray and officer's insignia in center are gold plated, against a recessed background of red enamel. Two sizes are available —6½"x6½", and 9"x9". Similar plates for department members, without center emblem, can also be furnished.

CAIRNS

Outfitters to Firemen Since 1836

ALUMINUM
HELMETS

Crown and brim are drawn from one piece of rolled aluminum; crown corrugated for greater strength and reinforced by four heavy combs; brim beaded, and reinforced by steel wire rolled into the edge; CAIRNS CUSHION LINING for comfort, safety and security; made in regulation and drop brim styles; light, strong, durable helmets that will not shrink or lose shape.

Write for Catalog 331.

CAIRNS & BRO., INC.
ALLWOOD, CLIFTON, N. J.

developed their own F5 battery weighing only 9 pounds and sized approximately 3⅞ x 7 x 6½ inches high, with screw terminals.

New Scott Oxygen Demand Inhalator

Administration of oxygen to persons suffering from smoke, fumes, or shock, is simplified and economized by the new Scott Oxygen Demand Inhalator. It can also be used to administer oxygen to those emergency "heart" cases, after resuscitation, to permit returning resuscitation equipment to the station, ready for other emergency uses.

It is completely portable, if attached to C, D, or E cylinders. Some Fire Departments are attaching it to a large (100 or 200 cu. ft.) oxygen cylinder stowed on a truck, to assure a supply of oxygen adequate for scores of persons at the scene of a fire, or other catastrophe.

Functioning is completely automatic. Utilizing the Scott Demand-Flow principle, the oxygen flows only on inhalation, permitting the patient to breathe normally with minimum effort and eliminating any possibility of excess pressures.

The face mask can be held to, or strapped to the subject. A unique "safety valve" permits air to be drawn into the mask if the oxygen supply should become exhausted.

This unit is designed as a supplement to, and not as a substitute for, resuscitators or manual resuscitation.

Carbon and Sand to Fight Oil Slick Fires

In May, 1948, FIRE ENGINEERING published an account of experiments conducted by the Navy Department whereby sand, treated with asphalt and oil mixture, was reported successfully used to remove oil slick and slime from surface water, thereby reducing the hazard of fire.

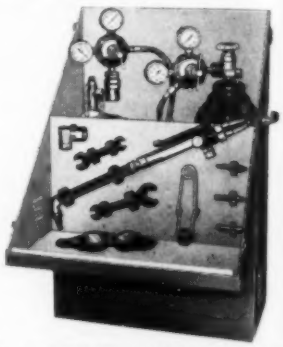
For two years the Navy has been using this process to combat spillages of petroleum products and other lighter than water organic liquids, such as benzol, paint vehicles and thinners and many other wastes of industrial plants along waterways.

It is now reported that this product and method of application is known as Carbosand. Until the middle of 1948 it was manufactured exclusively for the Federal Government. In July, Carbosand Corporation, 915 Eye St., N.W., Washington, D. C., the producers, announced that it would be permitted to make the product and process available to port authorities and commercial interests, and that its production capacity and engineering staff was being increased so that by 1949 it would be able to handle the demands of all major ports.

Carbosand has now established a large plant in New Jersey and is said to be meeting commercial demands for this latest post-war fire preventive development. Similar expansion programs are reported under way on the Gulf and West Coast, with the objective of producing Carbosand in strategic points in sufficient volume to both accommodate day-by-day orders, and to create sufficient stockpiles in its sand silos for any emergency such as harbor spill, according to Mr. R. E. Hoffman, president of the Carbosand Corporation.

Here's an EMERGENCY FLAME CUTTING OUTFIT —

Designed by Firemen for Fire Departments!



The FIREMAN'S JIFFY-KIT is indispensable in emergencies—will quickly cut through metal obstructions up to 12 inches in thickness!

Complete with I.C.C. inspected 40 cu. ft. acetylene and 60 cu. ft. oxygen cylinders; heavy duty cutting torch; oxygen and acetylene regulators listed by Underwriters Laboratories; 50 ft. twin hose, etc.—all enclosed in sturdy all-welded carrying case.

ALWAYS READY FOR INSTANT SERVICE.

WRITE TODAY for Complete Details

A-A WELDING SUPPLY CO.
9228 S. ADA STREET
CHICAGO 20, ILL.

In the Fire Service—

THERE'S
NOTHING
"JUST AS GOOD"

The fire service prides itself on buying "the best," everytime. *INSIST on ATLAS*—everytime—and you'll get the best life net!

ATLAS LIFE NETS

ATLAS SAFETY EQUIPMENT CO., INC.
27 WARREN ST. NEW YORK 7, N. Y.

Carbosand is composed of finely divided sand mixed with a high fixed carbon solution. The resultant material is then roasted in a kiln type furnace, is further treated by a simple chemical and heat process and bagged. The resultant product has a specific gravity of 2.65.

Carbosand is distributed by spraying on the surface of the water by means of a compressed air method which is said to be rapid, efficient and economical. The company points out that the air spraying method followed for Carbosand is not to be confused with sand blasting methods. A 3½ H.P. portable air compressor of 15-17 CFM capacity is sufficient as an air source to create a 25 to 35 pound per square inch pressure most desirable for the distribution of Carbosand.

When Carbosand blankets an oil slick the resultant action is said to be comparable to that of blotting up ink which has been spilled on a level surface. Carbosal is said to compensate for variable thickness of the slicks. After spraying a blanket of Carbosand over an oil slick and allowing about three minutes to pass, some dark spots may be observed showing an excess of oil in these particular spots. Additional Carbosand is then directed at such spots to absorb the excess oil which was "wet through" the blanket. When no further spots are visible, the entire blanket is ready for sinking.

Sinking of the Carbosand-oil-blanket may be accomplished easily, it is said, by agitation. Experiments have shown that a simple hose stream is the best means of accomplishing this. As the water strikes the Carbosand-blanket, the surface tension is broken, thus permitting the oil-bond to sink immediately. This sinking is permanent, it is said, laboratory specimens have been sunk over two years, during which time occasional violent agitations have failed to break the bond between the sand and the oil.

The quantity of sand necessary to remove a certain area of oil depends upon the amount and thickness of oil and its type. Actual tests are said to show that one ton of Carbosand will permanently and completely remove from 4,000 to 6,000 square feet of solid fuel oil slick. Lesser amounts are required for lighter petroleum products. Oil soaked pilings, steel and concrete structures may be cleaned of oil by spraying with Carbosand and then flushing with water.

Fire prevention and protection authorities who are interested in this latest development may secure further particulars by writing directly to the Carbosand Corporation, 915 Eye Street, N. W., Washington, D. C.

A Correction

Through an inadvertence, the news item on Scott Senior and Junior Sling Air Paks, in the February iss of FIRE ENGINEERING contained a misstatement, which we are pleased to correct.

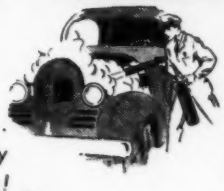
The Scott Air-Paks Model 6000 A2M is Bureau of Mines approved, and not Models 6000 B3 and B4 as was erroneously stated on these pages last month.

Hume, Ill.—An ordinance has been adopted establishing a fire department in the Hume Fire District. Clifford Barth is President of the Board of Trustees, and O. M. Smith is Secretary.

TURN YOUR SPARE TIME INTO PROFITS!

SELL *Randolph* FIRE EXTINGUISHERS

$84. A WEEK FROM 2 SALES A DAY!



All Sizes . . . Approved By Underwriters!

Your prospects are *unlimited* . . . every factory, farm, home, garage, laundry, boat and car needs Randolph protection.

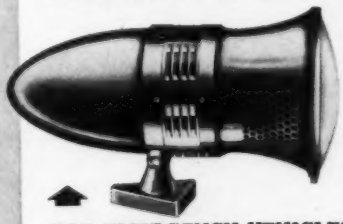
Here's the modern extinguisher with a host of fire-fighting features. It's easy to use . . . just one trigger-touch sends snowy CO_2 deep into the fire . . . smothers it in split-seconds. Randolph is non-toxic, no damage to equipment. Does not freeze, deteriorate, or conduct electricity.

Build a successful *part-time* business as a Randolph Dealer. Sell the nationally advertised Randolph Extinguishers used by leading industries everywhere. Write for your full or part-time Dealership Plan *now!* The same plan that is bringing big profits to scores of other firemen. Qualify for an *exclusive* territory by acting . . . TODAY!

RANDOLPH Laboratories, Inc., 19 E. Kinzie St., Chicago, Ill.

STERLING SIRENS

NOT BY CHANCE . . . The Choice of Leading Fire and Police Departments, Hospitals, Manufacturers and Others



STERLING has led the field in new designs and improvements for over 40 years. First to introduce precision manufacturing of siren alarms, Sterling is now the world's largest manufacturer of siren equipment.

FOR EMERGENCY VEHICLES
Model 20 SIRENLITE—a powerful siren combined with an automatically flashing red light.

FOR STATIONARY USE
Model M—quick accelerating, powerful, heavy duty public fire alarm. Fully weatherproof, made from the highest grade material.

Complete Line of Siren Equipment Available. Bulletin on Request.

THE STERLING SIREN FIRE ALARM CO., INC.
58 Allen St., Rochester 6, N. Y.

"ALL-OUT"

DRY CHEMICAL FIRE EXTINGUISHER

EASIER TO HANDLE — lighter in weight by 7 to 15 lbs.

FASTER IN ACTION — 10' x 10' pit of blazing gas and oil *all out* in seconds.

PENETRATES CREVICES—completely blankets wide area.

ELIMINATES RE-IGNITION—works in winds and drafts.

NON-TOXIC, NON-CORROSIVE — harmless to everything but fire—including food.

SAFE ON ELECTRICAL FIRES—non-conductive.

FAN SHAPED NOZZLE — ejects flat stream; screens off flame from burning material; safeguards operator.

Only "ALL-OUT" gives *all out* protection. Demonstration anywhere, anytime. Write today for illustrated data.
Model A-16 illustrated, has 15 lb. capacity Model B-10 contains 10 lbs of dry chemical.

Protects the operator as it kills the fire.

ALL-OUT MFG. CORP.
2 PARK AVENUE, NEW YORK 16, N. Y.

Fremont Fire

(*Continued from page* 191)

and panelling, the police used revolvers, shotguns and finally high-powered rifles to blow holes in the glass. In his report to FIRE ENGINEERING, Chief Myers said: "These blocks were difficult to break after we had shot holes through them with police guns. We could blow them out with 250 pounds pressure at the pump which, with the lay we had, would be about 90 pounds nozzle pressure. The glass used was 'material glass'."

Mayor Harold Whitcomb of Fremont called out all Police and Company B of the National Guard, who, with state highway patrolmen, routed all traffic away from the area.

Injured in the fire were Chief Myers, who suffered a cut nose; James Briggs, Fremont Fireman, lacerated hand, and Alfred Mann, Assistant Chief of the Bellevue Fire Department, sprained ankle.

Short Cuts

(*Continued from page* 200)

it. When the paper is partly burned, place your palm firmly over the bottle mouth. The flame will soon go out, and you will find that the bottle clings to your palm.

By reducing the volume of free oxygen, the flame reduces the inside pressure. Partial vacuum then holds the bottle to your hand.

Obituaries

Ex-Chief L. E. Reif Dead

Lawrence E. Reif, Chief of the New Haven, Conn., Fire Department for more than 15 years, died suddenly in his Hollywood, Fla., home on February 7. He was 81 years of age.

According to word received in New Haven, Former Chief Reif went to the post office in Hollywood, returned home and went to bed. Shortly after retiring he sat up in bed and complained of feeling very hot. He then grabbed his wife, Catherine V. Reif, and fell to the floor. Death was caused by a coronary thrombosis.

A native of New Haven, born April 10, 1869, Chief Reif resided in that city after his retirement, until about seven years ago, when he moved permanently to Hollywood, Florida.

Chief Reif was appointed a substitute in the New Haven Fire Department in April, 1899, and was named a permanent hoseman July 2, 1900. He was advanced to the grade of Lieutenant January 4, 1905, and promoted to Captain, August 1, 1906.

In 1915, he left the Fire Department temporarily to become Chief of the Fire Department of the Winchester Arms Company. Later he resigned to accept the job of Chief of the New Haven Fire Department in 1925. He was retired on January 1, 1941.

Chief Reif narrowly escaped death in the Judson House fire in Canal Street on February 19, 1901, when a wall collapsed on two fellow firemen who were next to him. Four firemen were killed in that fire and a score of others injured.

Fraternally, Chief Reif was a past exalted ruler of New Haven Lodge,

JANESVILLE QUALITY TURN OUT CLOTHING

Our turnout suits are giving excellent satisfaction in most of the large fire departments throughout the U. S. and

THERE MUST BE A REASON WHY SO MANY FIREMEN INSIST ON JANESVILLE QUALITY

NOW AVAILABLE

We can now supply old type ¾ Length and Knee Length Felt-lined Firemen's Boots.

JANESVILLE APPAREL CO.
JANESVILLE, WIS.

BRAXMAR BADGES

Standard with firemen for 69 years. We can now supply nickel and chrome badges.

John O. Veit, Pres.

C. G. BRAXMAR CO., Inc.
216 E. 45 Street, New York 17, N. Y.

No. 25, B.P.O.E., for many years a member of the Germania Lodge of Odd Fellows, the New Haven Aeria of the Fraternal Order of Eagles, and the Improved Order of Red Men. Besides his wife, former Chief Reif is survived by a daughter, Mrs. Frank Setora; and a stepson, Lieut. Edwin L. Connelly of the New Haven Fire Department.

TOM MAGNER.

Persons in the News

Vance Matthews Fire Prevention Engineer for Far East Command

Vance Matthews, who served as a Major in charge of Research and Development at the Engineer Board during the war, and later as Operations Officer for the Corps of Engineers at the Bikini Atom Bomb Tests, has been appointed to succeed the later C. P. Holmes as Fire Prevention Engineer in charge of Fire Prevention and Protection for the entire Far East Command.

For two years prior to his present assignment, Mr. Matthews served as Fire Administrator and Advisor to General MacArthur and aided in the reorganization of the Japanese Fire Department and guided the formation and development of the National Fire Research Institute, an organization patterned after the National Board of Fire Underwriters and the Underwriters Laboratories, combined.

In his new position, Mr. Matthews will be in charge of Fire Prevention and Protection in Japan, the Philippines, Guam, Bonnins and Okinawa.

M. WEBER

Chief Granger to Retire

Chief James E. Granger of Cleveland, Ohio, has announced that he will retire as head of the Fire Department of that city on March 17—55 years to the day after joining the Department.

Likewise, it was the same date in 1931 that he was sworn in as chief.

Granger, who will be 74 in May has no immediate plans.

Chief Granger had an early boyhood ambition to go to West Point and become a soldier. But the depression of 1894 caught him in need of a job and he hurriedly passed the examination to join the force and reported for duty March 17.

Promotions came rapidly for the young fireman who formed a habit of standing at the top of the Civil Service lists. He became lieutenant four years after entering the service, a captain in 1903, battalion chief in 1911 and first assistant chief in 1914.

The old battler has not hesitated to turn his combative spirit against City Hall superiors with all the zest he displays commanding his men in action at a big blaze.

"If you've got right on your side, fear no man," he says.

The chief's most exciting moment nearly cost his life in the Euclid Hotel fire in 1914. A basement fire had eaten away wooden supports for a tile floor. Granger and some of his men were in the room when parts of the floor began to cave in. They barely escaped falling into the inferno.

For Flexible Performance

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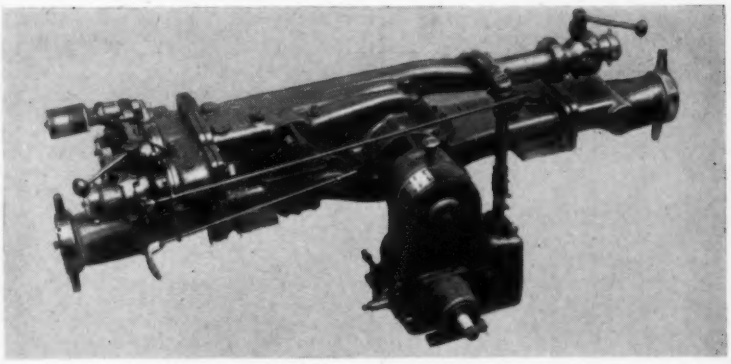

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Breakage Characteristics of Tempered Plate Glass

(*Continued from page* 187)

Conclusions Resulting from Demonstrations with 12-Inch by 12-Inch Samples of Glass

1. The demonstrations using 12 inch square samples of tempered plate glass and ordinary polished plate glass, as well as previously described tests of fracture of tempered plate glass doors, offer visual comparison between the characteristic fracture of tempered plate glass and fracture of ordinary polished plate glass. Tempered plate glass fractures into many small relatively blunt-edged particles, while ordinary polished plate glass fractures into large, pointed, sharp-edged slabs, or shards, (See Photographs 1, 2 and 3.)

2. A piece of tempered plate glass can be subjected to a flame of an acetylene welding torch without immediate fracture. A hole can be melted through the glass if the flame is applied a sufficient length of time. Fracture of the glass will then take place upon cooling in the open air. (See Photograph 4.)[6]

3. Demonstrations of fracture and attempted fracture of tempered plate glass, using standard fire department pike pole and fire axe, produced results similar to those of Tests A and B; the pike pole was ineffective while the fire axe produced the desired fracture of the glass. (See Photographs 2, 3, 5 and 6.)

4. Twelve-inch square sample of tempered plate glass, when dropped from a height of 35 feet on concrete pavement will fracture into characteristic particles, the majority of which will spread out in a horizontal direction along the pavement; a number of glass particles were observed to rebound to a height of about 13 feet and 8 inches. (See Photograph 7.)

[1]From the inquiries received by editors of FIRE ENGINEERING, it is evident members of the fire services are somewhat confused over the use of tempered plate glass, polished plate glass, and sheet plastics imitation glass, in modern building construction. It is now disclosed (upon information from leading authorities of the plastics industry) that *no* plastic substitutes for plate glass in any form, presently being used in building construction (except certain small panes used in limited ornamentation). It is true that plastics such as Plexiglas and Lucite are supplied in heavy sheets, but their present cost and other drawbacks have thus far prevented their wide acceptance and application in store and other building fronts, doors, etc.

There is some reason to believe that before long plastics may find their way into this field and if and when this occurs fire fighters may have to still further revise their forcible entry technique.

[2]This would appear to be a sound argument for retention of the pick head axe on fire apparatus. In some localities there has been a tendency to discard the pick head type and use only flat head axes.

[3]It will be noted that the tests covered only the *striking* of the glass door with the ladder. The question might be raised, could the door either be pushed out of its frame, or removed from its hinges—or broken—by using 6 to 8 men on the ladder and not striking, but placing the heel of the ladder against the glass and all hands heaving in concert against the glass? This may prove no more effective than the striking method as applied in the test; the editors merely raise the question for future consideration.

[4]What would be the effect of a heavy fire stream directed against the heated, tempered plate glass? And what would be a safe distance for the men at the nozzle, in operating such a stream on a hot tempered plate glass panel? The test evidence would indicate the fallacy, if not danger, of attempting to drive open any tempered plate glass doors with heavy fire streams.

[5]It is to be assumed therefore, that time and effort will be wasted in attempting to use a cutting torch on tempered plate glass of any kind.

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Convention Dates

March 23—FIRE CHIEFS EMERGENCY PLAN, WESTCHESTER COUNTY, N. Y. Monthly meeting. Fire Headquarters, North Pelham, N. Y. Secretary, Howard Geer, Rye, N. Y.

Mar. 29-Apr. 1—GREATER NEW YORK SAFETY COUNCIL. "Safety Convention Exposition," Hotel Statler, New York City. Fire Prevention Sessions, Friday, April 1. Secretary, William J. Farley, Greater New York Safety Council, 60 East 42nd St., New York 17, N. Y.

April 18-20—GEORGIA STATE FIRE COLLEGE. Annual meeting, Atlanta, Ga. Director, Harry Phillips, Fire Marshal, Atlanta Fire Department, 166 Alabma Street, S. W., Atlanta Ga.

April 24-26—NEBRASKA STATE FIREMEN'S TRAINING SCHOOL. Annual meeting, Grand Island, Neb. Director, J. I. Fetters, Asst. State Supervisor, Trade & Industrial Education, State Capitol, Lincoln 9, Neb.

April 25-29—SOUTHEASTERN KENTUCKY FIRE SCHOOL. Regional fire school, Puntsville, Ky. For information contact Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

May 4-6—NORTHWEST FIRE SCHOOL. Annual meeting, Auditorium, State Office Building, St. Paul 1, Minn. Director, Leonrd C. Lund, Deputy State Fire Commissioner, St. Paul, Minn.

May 5-7—KANSAS STATE FIREMEN'S ASSOCIATION. Annual meeting, Emporia, Kans. Secretary, Loren R. Bass, 3000 West 18th Street, Topeka, Kans.

May 9-12—ASSOCIATION OF CANADIAN FIRE MARSHALS and DOMINION FIRE PREVENTION ASSOCIATION. Annual meeting, Regina, Sask. For information contact W. L. Clairmont, Dominion Fire Commissioner, Ottawa, Ont.

May 10-11—WESTERN KENTUCKY FIRE SCHOOL. Regional meeting, Owensboro, Ky. For information contact Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

May 12-14—OREGON STATE FIFE CHIEFS' ASSOCIATION AND OREGON STATE FIRE FIGHTERS' ASSOCIATION. Annual meeting, North Bend, Ore. President, Oregon Fire Chiefs' Association, Otto Karg, Baker, Ore.

May 16-19—NATIONAL FIRE PROTECTION ASSOCIATION. Annual meeting, San Francisco, Cal. General Manager, Percy Bugbee, 60 Batterymarch Street, Boston, Mass.

May 17-20—IOWA FIRE COLLEGE. Annual meeting, Iowa State College, Ames, Ia. Director, R. C. Byrus, Fire Protection Engineer, Iowa State College, Ames, Ia.

May 23-27—ARSON INVESTIGATORS' SEMINAR. Annual meeting, Purdue University, Lafayete, Ind. Director, Professor J. L. Lingo, Public Safety Institute, Purdue University, Lafayette, Ind.

May 22-28—NORTHEASTERN KENTUCKY FIRE SCHOOL. Regional fire school, Morehead, Ky. For information contact Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

May 27-28—EASTERN ASSOCIATION OF FIRE CHIEFS. Annual meeting, York, Pa. Secretary, Charles E. Clark, Box 271, Wayne, Pa.

June 5-8—NEW YORK STATE ASSOCIATION OF FIRE CHIEFS. Annual meeting, Syracuse, N. Y. Secretary-Treasurer, Chief Henry F. Drake, Clinton Corners, N. Y.

June 7-9—KENTUCKY FIRE SCHOOL. Annual meeting, University of Kentucky, Lexington, Ky. For information contact Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

June 10-11—BUCKS COUNTY FIREMEN'S ASSOCIATION. Annual parade and convention, Perkasie, Pa. Secretary, Clifford S. Shearer, Quakertown, Pa.

June 12-17—SOUTH DAKOTA FIRE SCHOOL. Annual meeting, Huron, S. D. For information, contact local fire department.

June 13-16—NEW MEXICO FIRE SCHOOL. Annual meeting, Silver City, N. M. Secretary-Treasurer, F. W. Wynn, Hobbs, N. Y.

June 14-17—ILLINOIS FIRE COLLEGE. Annual meeting, University of Illinois, Champaign-Urbana, Ill. Secretary, Chief Roy Alsip, Fire Headquarters, Champaign, Ill.

June 21-23—NEW ENGLAND ASSOCIATION OF FIRE CHIEFS. Annual meeting, Wentworth Hotel, Portsmouth, N. H. Secretary, John W. O'Hearn, 22 Mount Auburn Street, Watertown, Mass.

June 22-24—MARYLAND STATE FIREMEN'S ASSOCIATION. Annual meeting, Ocean City, Md. Secretary, B. R. Benson, III, 303 Bosley Avenue, Towson 4, Md.

June 23-25—MISSOURI VALLEY ASSOCIATION OF FIRE CHIEFS. Annual meeting, Fort Collins, Col. Secretary, Chief Ray Tiller, Fire Headquarters, Waterloo, Ia.

July 21-23—ASSOCIATION FOR FORMER U. S. NAVY, COAST GUARD AND MARINE CORPS FIRE FIGHTERS. Annual meeting, Franklin Legion Hall, High Street, Columbus, Ohio. Secretary-Treasurer, William J. Mignery, R. No. 5, Elkhart, Ind.

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Convention Dates

July 25-28—WEST VIRGINIA FIRE SCHOOL. Annual meeting, West Virginia University, Morgantown, W. Va. Director, R. E. Hanna, Jr., Fire Service Extension Schools, School of Mines, West Virginia University, Morgantown, W. Va.

Aug. 8-12—PENNSYLVANIA FIRE SCHOOL. Annual meeting, Lewistown, Pa. Director, Edgar A. Spotz, Department of Public Instruction, Harrisburg, Pa.

Aug. 12-13—VERMONT FIREMEN'S ASSOCIATION. Annual meeting, Windsor, Vt. For information, contact Acting Chief Richard C. Holmes, Windsor, Vt., Fire Department.

August 20—BALTIMORE COUNTY VOLUNTEER FIREMEN'S ASSOCIATION. Annual meeting, Maryland Line, Md. Secretary, W. A. Chenoweth, 4104 Milford Mill Road, Pikesville 8, Md.

Aug. 29-Sept. 1—DOMINION ASSOCIATION OF FIRE CHIEFS. Annual meting, Ottawa, Ont. Secretary, Chief Allan H. Clark, Fire Headquarters, Lakefield, Ont.

Sept. 6-8—KENTUCKY FIREMEN'S ASSOCIATION. Annual meeting, Covington, Ky. Secretary, Captain V. A. Beam, 818 Sutcliff Avenue, Louisville, Ky.

Sept. 25-29—INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual meeting, New Orleans, La. Secretary-Treasurer, Daniel B. Tierney, 8 Robbins Road, Arlington 74, Mass.

Oct. 4-6—FIREMEN'S ASSOCIATION OF THE STATE OF PENNSYLVANIA. Annual meeting, Greensburg, Pa. Secretary, Charles E. Clark, Box 271, Wayne, Pa.

Oct. 10-13—INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual meeting, Pittsburgh, Pa. Secretary, Irvin Shulsinger, International Municipal Signal Association, 11 West 42nd Street, New York 18, N. Y.

SEND IN YOUR MEETING DATES

As a service to its readers FIRE ENGINEERING endeavors to maintain an up-to-date list of all county, state, regional and national organizations and associations in the fire service, and the dates on which their annual conventions are to be held.

Officers of associations are invited to forward the editors, at the earliest opportunity, the roster of association officers, and the dates (actual or approximate) on which conventions are scheduled.

This information will be listed under the heading "Convention Dates."

Rome, N. Y., Fire Department Rated "Inadequate"

The Rome N. Y. Fire Department, is described as "inadequate" and "seriously deficient" in manpower and equipment in the report of the study conducted by the Committee on Fire Prevention and Engineering Standards of the National Board of Fire Underwriters.

Among the proposals advanced for improvement of fire fighting in the city were: (1) Increase in fire department personnel to insure adequate manpower at all times (2) Establishment of an engine house near Rome Free Academy to house a new pumper and ladder truck; (3) Transfer of Pumper Company 1 to a new station near E. Dominick St. and Locomotive Ave. Abandonment of the old house, and establishment of an engine house near W. Dominick and Doxtater St. and (4) Development of a comprehensive training program for firemen and their officers and intensification and expansion of inspection activity.

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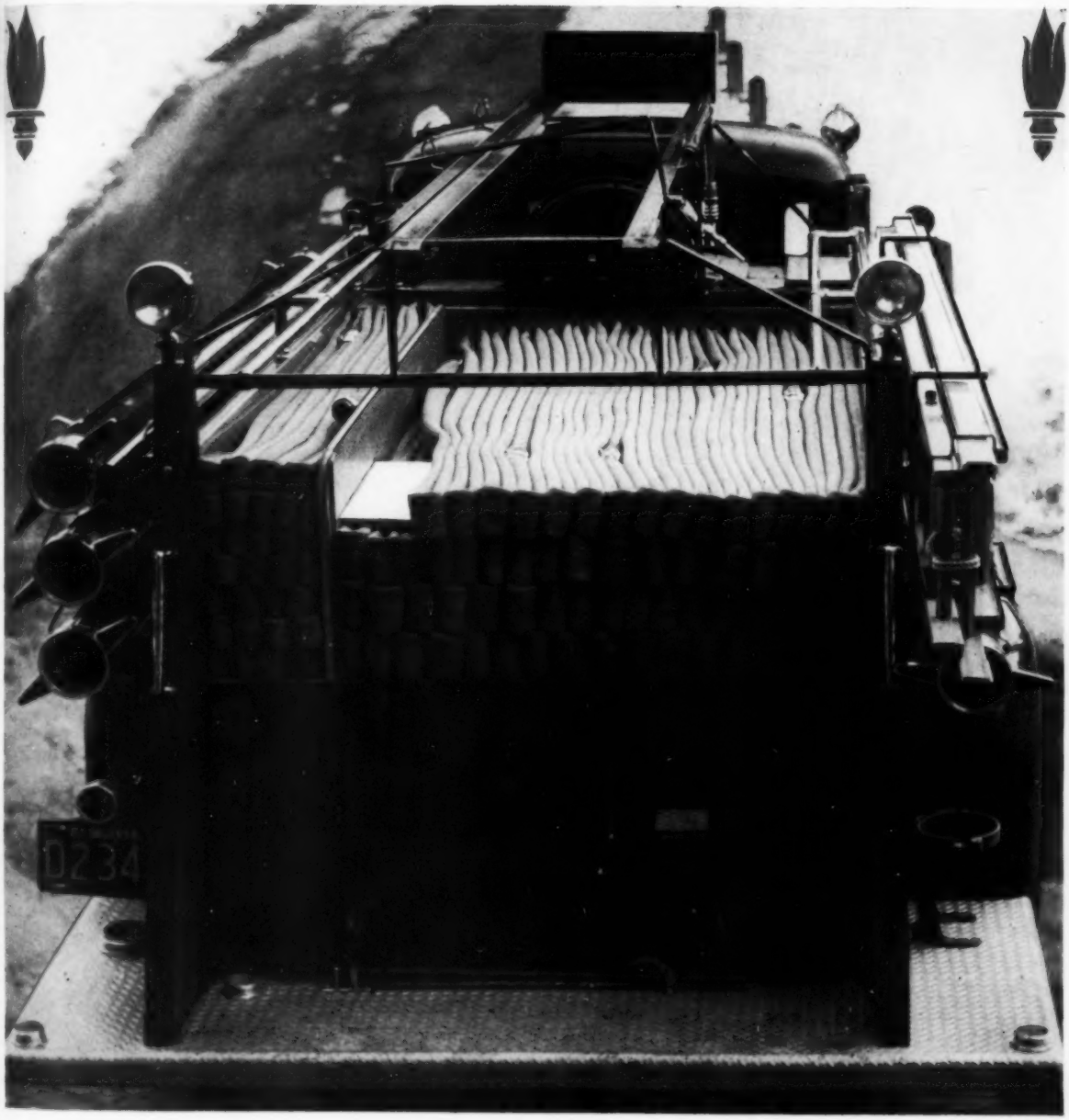
ADVERTISING INDEX

FIRE ENGINEERING

MARCH, 1949

	Page
A-A Welding Supply Co.	214
Aladdin Proportioning Equipment Co., Inc.	169
All-Out Mfg. Corp.	216
Aluminum Ladder Co.	213
American District Telegraph Co.	172
American-Marsh Pumps, Inc.	213
America's Best Coatings	205
Ansul Chemical Co., Fire Extinguisher Div.	171
Atlas Safety Equipment Co., Inc.	214
Bar-Way Mfg. Co.	218
Beacon Falls Rubber Footwear	178
Bean Mfg. Co., John	201
Blackinton & Co., Inc., V. H.	176
Body Guard Mfg. Co.	219
Boyer Fire Apparatus Co.	219
Braxmar Co., C. G.	216
Briggs & Stratton Corp.	207
Cairns & Bro.	214
Carpenter Manufacturing Co.	221
Circul-Air Corp.	167
Darley & Co., W. S.	211
De Boer & Assocs., H. O.	219
Doolittle Radio, Inc.	202
E and J Manufacturing Co.	177
Elkhart Brass Mfg. Co., Inc.	217
Emerson Co., J. H.	Inside Front Cover
Eureka Fire Hose Div., U. S. Rubber Co.	199
Fabric Fire Hose Co.	Inside Back Cover
Fairbanks, Morse & Co.	218
Federal Enterprises, Inc.	159
Four Wheel Drive Auto Co.	Back Cover
Fyr-Fyter Co.	166
Gamewell Co.	180
Goodrich Co., B. F.	163
Hale Fire Pump Co.	212; 217
Hamilton Scale Co.	210
Hewitt Rubber Div., Hewitt-Robins, Inc.	221
Homelite Corp.	168
Howe Fire Apparatus Co.	209
Janesville Apparel Co.	216
Kim Hotstart Mfg. Co.	208
McIntire Brass Works, F. N.	218
Mack Mfg. Corp.	165
Mars Signal Light Co.	174
Midwestern Mfg. Co.	164
Morning Pride Mfg. Co.	221
Oberdorfer Foundries, Inc.	179
Onan & Sons, D. W.	219
Powhatan Brass & Iron Works	209
Quaker Rubber Corp.	175
Randolph Laboratories, Inc.	215
Rockwood Sprinkler Co.	161
Russell Uniform Co.	221
Safety First Co.	203
Scharff, Inc., J. H.	211
Scott Aviation Corp.	222
Smith & Co., D. B.	173
Spangler Engineering & Sales Co., D. H.	162
Stephenson Corp.	206
Sterling Siren Fire Alarm Co., Inc.	215
Ward LaFrance Truck Corp.	170
Wentworth-Forman Co.	218



Above cut shows 1000 feet of FABRIC 2½" D. J. FIRE HOSE equipped with FABRIC 3-LUG COUPLINGS laid in a Standard 1000 foot pumper body, showing its ability to greatly exceed ordinary hose performance. With the surplus room available and maintaining the loose packing shown, 1300 ft. can easily be carried in this body size and with a trifle more care 1400 ft. Equivalent ratios for other rated bodies and hose wagons.

• KEYSTONE •

FULL CABLED FULL TWILL WOVEN GENUINE WAX AND PARA GUM TREATED HEAVY DUTY FIRE HOSE

FABRIC FIRE HOSE CO.

1869 SANDY HOOK, CONN. **1949**

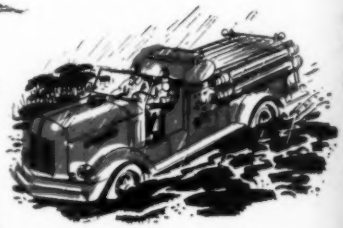
FIRES
don't wait for
GOOD ROADS

When fire strikes . . . strike back fast with the extra power . . . added traction . . . . greater speed . . . . FWD's four driving wheels give you

To save lives and property, you must get to the fire — and get there fast — no matter how bad the roads. FWD fire engines — with all wheels driving, all wheels gripping the road — give you the plus performance to meet any emergency from fire-station to fire. *Write for complete facts on great new FWD fire-fighting equipment — triple combination pumpers in 500, 750, and 1000 g.p.m. capacities, and the F-50-R designed expressly for rural fire-fighting.*

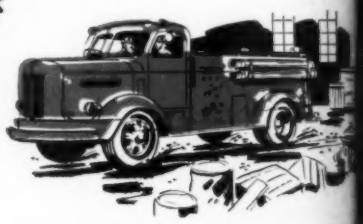
THE FOUR WHEEL DRIVE AUTO CO.
CLINTONVILLE, WISCONSIN
Canadian Factory: KITCHENER, ONT.

WITH FRONT WHEELS PULLING A
BACK WHEELS PUSHING — FWDs D
THROUGH SNOW-BLOCKED STRE



POWER ON ALL FOUR WHEELS
TAKES YOU THROUGH TO
OFF-THE-ROAD LOCATIONS

A FOUR-WHEEL GRIP ON THE ROAD
PULLS YOU UP STEEP, SLIPPERY
GRADES WITHOUT LOSING SPEED



FWDs GET THROUGH TO
OUT-OF-THE-WAY HYDRANTS
IN HARD-TO-REACH SECTIONS

Model F-75-T, 750 g.p.m. capacity triple-combination FWD fire fighter — equipped with FWD safety cab.

FWD

YOU'RE SURE TO GET THERE WITH AN FWD